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Wintering and Production Records

By V. G. Milum, University of Illinois

WHEN one picks up the bee journals of the past few years he is almost sure to strike upon some article relative to the amount of stores required for wintering a colony of bees or the value of winter protection. The writer will not attempt to review the literature relative to the subject, but will add some more records to the general mass of information. That submitted herewith is from records taken in the apiary of the University of Illinois, located at Champaign-Urbana, Illinois, approximately 125 miles directly south of Chicago.

During the winter of 1926-1927, records were kept of loss of weight in colonies between November 5, 1926, and March 31, 1927. We say "loss in weight" because there is no exact way of weighing honey consumed, since honey weight supplanted by weight of young bees and brood and new pollen stores cannot be determined.

During this five-month period of 1926-1927, twenty-three colonies wintered in quadruple cases of the Iowa type ranged in loss of weight from 12½ to 38 pounds, with an average of 23 pounds. These cases allowed 6 inches of packing of shavings on the sides, 4 inches on the bottom, 10 inches above, Modified Dadant hives for the most part being used. Part of these colonies with large tunnels lost an average of 21 pounds, while those with reduced tunnels lost 24.3 pounds during the period.

For the same period, three colonies left unprotected lost an average of 22 pounds. Two colonies in double-walled hives with chaff-packing tray averaged 14½ pounds, while four colonies in individual Celotex unpainted telescope cases showed a loss of 17 pounds for the same period. The number of colonies observed is rather small for comparative purposes, but larger numbers were employed in the 1928-1929 records.

For the winter of 1928-1929, all colonies were weighed on November 15 and then at intervals during the winter, depending on the amount and type of packing.

The writer was somewhat surprised to find the low consumption in the early part of the winter and also to find so little difference between the unpacked and the protected colonies. It may be said that for the locality of these colonies the bees obtained frequent good flights after the middle of February and pollen was first carried in from soft maples on March 13, 1929. This means that for the months of March, April and May the records are complicated by the use of stores for brood rearing, the exchange of this type being greater in the heavier protected colonies for the early spring.

It has been our observation that protected colonies always are stronger in bees and have more brood by the fruit blooming period than do colonies wintered with no protection. However, toward the latter part of May and early June a strong unprotected colony may have as much or more brood than colonies showing a larger brood nest earlier in the spring. In cold, wet springs with a late honeyflow, as in 1927, for this locality, weaker colonies may even build up to fair strength by the main honeyflow and store a good surplus.

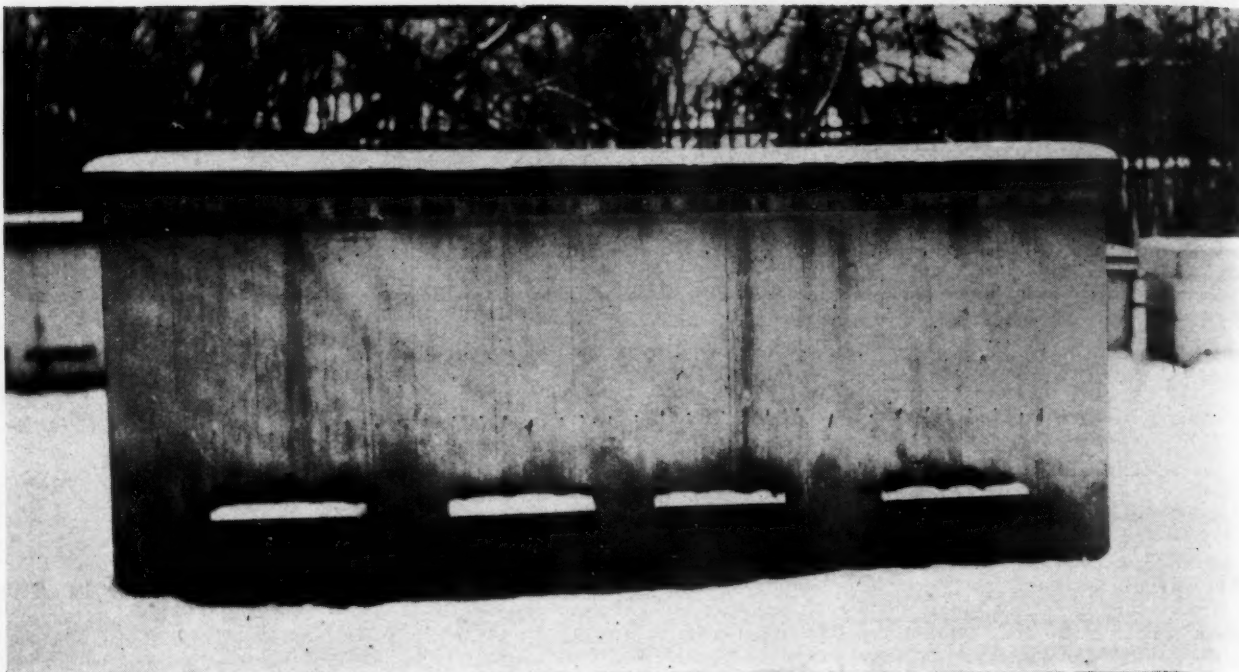
With an early honeyflow the better protected colonies will show more favorable results as far as surplus production is concerned.

From the results of previous use of the Celotex cases, we were about convinced that they were not so desirable as we had them constructed. Even when painted with sublime blue lead mixed with linseed oil, we found that they were great absorbers and retainers of moisture. Perhaps some top ventilation should be provided, but without it many colonies were found with moldy combs and with piles of moldy bees below the cluster on the bottom board. That the wet Celotex was not a good insulator is also shown by the amount of loss of stores in the Celotex-protected colonies, being almost as great as with no protection. We are trying them again with a layer of roofing paper to keep the Celotex dry. The results should be more satisfactory.

Now let us turn to the production records of these same colonies wintered with various types of protection. As given in Table 2, we have allowed each colony the same amount of stores for the 1928-1929 winter period and have considered surplus stores as the honey produced above an additional forty pounds for the winter of 1929-1930. In other words, each colony was loaned forty pounds or more of stores in 1928, but had

Table 1. Loss of Weight—Winter 1928-1929

Type of protection.	Nov. 15 Jan. 30 Days: 76	Nov. 15 March 2 97	Nov. 15 March 18 123	Nov. 15 April 2 138	Nov. 15 April 17 153	Nov. 15 May 25 191
None	10 colonies 6.7	11.0	16.1	18.8	20.6	27.0
Double-walled	3 colonies 6.0	5 colonies 9.0	12.75	14.45	16.57	22.84
Celotex—Telescope, painted. Removed March 18			13 colonies 14.87	16.86	19.24	27.64
Iowa quadruple packing case. Removed April 16					21 colonies 22.5	12 col. 30.1



A four-colony case, long advocated as the best everywhere. But now, frankly, we don't know.

to pay it back in 1929. Records were not kept of the amount of drawn combs or foundation given the various colonies, but in general all received drawn combs until supply was exhausted, after which foundation was added, but generally not more than one super of such except in the case of the colonies listed as being divided and later reunited. Variations in individual colony total production may in part be due to these differences, but the averages are probably very little affected.

In compiling the average given in Table 2, not as many colonies are included as in the previous winter records of Table 1, but, as noted, some colonies were used for other purposes, as comb honey production; some colonies swarmed, some were weak or queenless, and hence not

considered as producers, but united to other colonies not herewith included.

Table 2 tells the story very well and indicates that additional protection is of value even as far south as central Illinois, although the value of Celotex and double-walled hives so far as additional production of surplus is concerned may not be sufficient to justify the additional expense. A larger number of colonies considered over a period of years would no doubt give more truly comparative figures.

On the other hand, the colonies provided with six inches of packing, as in the quadruple cases which were removed on April 17, long before necessary, show an increased production which would seem to justify the additional expense of the packing

case. The extra amount of labor involved in packing, unpacking and storing packing materials is the questionable point in this type of wintering. If the same amount of protection could be given in an easily operated case, the additional cost would be well worth while. One thing we are sure of, and that is that our heavily protected colonies are always stronger as a whole in the spring than those with less protection. At the middle of April, 1929, all colonies in quadruple cases that were examined showed from seven to eleven frames with brood in the Modified Dadant brood chambers, with some brood in the supers. Practically every such colony had more bees than three times (estimated) the average full-weight three-pound packages received on the same date. (Does it pay to buy package bees?)

But let us turn to the colonies that were wintered in quadruple cases and divided on April 18, that date being chosen because of its being about the average beginning of the apple blooming period over a period of fourteen years for this locality. No attempt was made to choose the strongest colonies, the five used being conveniently located in two of the six quadruple cases. As nearly as possible the brood and bees were divided into two equal portions, a new queen being introduced into the portion with the most sealed brood. The new colony was placed on a separate hive stand near the parent colony. The stores in the super were divided and some additional added if needed, but charged to the production records.

Two months later, on June 18,

Table 2. 1929 Extracted Honey Production

Winter protection	Colonies averaged	Production limits	Avg. pounds surplus
None	4	91-160	116.5
(Not averaged: 4 comb; 1 swarmed—48 lbs.; 1 weak—61 lbs.)			
Celotex	8	69-162	117
or	6	116-162	129.5
(Less 2 at 69 and 92 lbs.)			
(Not averaged: 2 swarmed—10 and 48 lbs.; 2 comb; 1 experimental)			
Double-walled	5	83-156	124
or	4	101-156	134
(Less one with spotted brood, poor queen—83 lbs.)			
Quadruple case	7	40-182	136
or	5	148-182	166
(Less 2 at 40 and 82 lbs.)			
(Not averaged: 2 queenless in June; others, comb honey)			
Quadruple case	5	182-290	240
Special. (Divided April 18; reunited June 18)			
3-lb. Package	4	9-85	36
2-lb. Package	5	27-85	44
(Packages installed April 18 on supers of honey below bodies of foundation)			

these colonies were again united, by the shaking method, the only queen being removed and the young queen caged in the ordinary mailing cage for re-introduction. As for the results, the average production, as shown in Table 2, was double that of colonies wintered without packing and not divided. For colonies wintered with heavy packing, the average increase was seventy-four pounds of extracted honey, or 45 per cent increase. The best of all the other systems of management only equalled the production of the poorest of this lot, 182 pounds, in spite of the fact that the latter was found to be queenless in September.

These increased results would seem to justify the extra manipulation at the beginning of the year, especially in years of good honeyflows. A similar experiment was tried in the spring of 1928, but the additional surplus did not justify the time and labor involved. Six divided colonies averaged 44 pounds; thirteen additional in packing cases gave an average of 29.5 pounds; four in double-walled, 27 pounds, and nine in Celotex giving 12 pounds average, all colonies being considered in the averages, although some actually lost stores and had to be fed in the fall, due to an extremely poor season.

This division and reuniting system is to be tried again, and it is hoped that other beekeepers may try the same system. An attempt will be made to reduce the amount of manipulation by leaving the two portions on the same stand, but providing a top entrance for the division having the newly introduced queen. This should facilitate reuniting the colonies at the beginning of the honeyflow. An advantage in addition to increased surplus not mentioned is that the colony is requeened early in the year, before supers begin to stack up. The method will probably successfully control swarming. None of these colonies so manipulated made any attempts to swarm, so far as we were able to observe.

The records of package bee colonies are also included in Table 2. Each was installed at the beginning of apple bloom, on supers of fall honey below a body of foundation. The spring conditions were unfavorable for gathering of nectar and pollen from fruit bloom and dandelion, which greatly retarded these colonies. The amount of surplus does not seem impressive, but this is that received over an additional forty pounds allowed for winter stores and that consumed in drawing out the combs of an eleven-frame Modified Dadant body, which is a material gain. These package bees might have done just as well if received at the beginning of the main honeyflow. However, it is our contention that in regions of

a short summer honeyflow and when spring conditions are favorable package bees are best installed at the beginning of the fruit blooming period in spite of the fact that spring feeding may be necessary in cold, wet seasons.

For regions with a fall honeyflow or with a long extended summer flow, or in regions where early pollen is not plentiful, then, no doubt, package bees may show favorable results even when purchased at the beginning of the summer flow. As far as having bees for pollination purposes in the orchards, over-wintered bees, if properly protected, and many unprotected, are more valuable at the beginning of the fruit blooming period than any three-pound package of bees. Besides, they are there when wanted, if ordinary care is exercised in fall manipulation.



American Honey Institute Seal

The American Honey Institute is now furnishing a seal to its members for use on their stationery or other advertising matter. This seal is made with a mortise so that each year the Institute member can change the date of the seal and thus indicate his support to the Institute.

The American Honey Institute is doing a wonderful work in giving publicity in those channels where much honey will be used, and every beekeeper should have a pride in contributing to this very important work.

For the Institute to fulfill its destiny, beekeepers everywhere should come to its support. The suggestion that subscriptions be made at the rate of \$1.00 for each ton of honey produced, or one-half of one per cent of the crop, is reasonable and would insure sufficient funds.

The seal may be secured from Mr. Lewis Parks, chairman of Board of Directors of the American Honey Institute, care of G. B. Lewis Company, Watertown, Wisconsin. This seal is available to members at a cost price of \$1.75 each.

Another Bee Story

A recent issue of the Charleston, South Carolina, Evening Post contains an interesting story about the apiary of Alex I. Easterby. There is a large picture of the apiary and an extended account of the reporter's impressions when he visited with the owner among the bees.

Store the Guesswork—Guess Not at Stores

By H. A. Insinger

ONE would hardly think that there are beekeepers who deprive their stands of practically all the honey that the busy little fellows have gathered during the season. With such an exceptionally short honey crop as has been experienced this year, the temptation exists to leave the stands short of the needed food supply for the approaching winter and SPRING.

The progressive beekeepers agree that the greater amount of stores is needed in the spring with the commencement of brood rearing. However, should we have an exceedingly open winter, or if the stands have received an excessive amount of packing, then most of the stores may be gone when the queen wants to turn to mass production in the most approved manner. In such a case, of course, there'll be no force to gather the honey, or, if you will have it this way, to make money for you.

So, then, it's adequate stores we want for the winter, and here is where much guesswork is committed. I do not doubt but that many stands owe their unproductiveness directly to such a cause. Furthermore, I believe, the beekeeper could congratulate himself that they did not die for him outright.

For determining the necessary amount of stores, lifting of the brood chamber is usually advocated. I presume it is a fairly good method. IF one is good at estimating. I do it differently. The method is just about as speedy as hefting the hive; one has the definite assurance of its contents.

I use a spring scale—the scale one usually sees in use by ice peddlers, or fish hawkers. Sometimes a miniature edition of such a scale is also found in the tackle box of fishermen.

All that is needed to be done is placing the hook of the scale under the rear of the hive and lifting up on the ring provided for that purpose. A quick glance readily tells the tale. The weight you read on the scale is half the weight of the hive. Double it and you have the total weight.

Before proceeding in this manner, however, it would be well to assemble a hive, as you use—i. e., bottom board, brood chamber, inner cover (if you use it), and top; also eight- or ten- (whatever equipment you use) frames with drawn comb. Place the whole assembly on the ground and weigh it with that spring scale as you would weigh the filled hives. Then allowance for bees must be made, too. In my opinion, a conservative estimate would be six pounds of

(Continued on page 504)

EDITORIAL

AMERICAN BEE JOURNAL

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Independence

During recent years the tendency toward specialization has perhaps gone to extremes. While specialization has made possible larger output at lower cost per unit, it has lost some of the element of safety which goes with diversification.

On a recent visit to the home of Benjamin Fischer, of Roanoke, Illinois, members of our staff were much impressed by his success by time-tried methods of farming. Fischer and his wife, who was formerly Miss Ruth Robinson, combine beekeeping with farming very successfully. All their farm operations are planned to utilize to the utmost the various products of the land, with sweet clover as the cornerstone of the structure.

A new field of sweet clover is sown with the small grain each year. There is accordingly a second year crop to furnish pasture for the cows and bees and a first year crop coming on. Each fall the older field is turned under to prepare for next year's corn crop. A number of cows are milked to provide for the family needs, and the weekly cream checks give a constant income to meet current expenses. The flow of milk is at its best from sweet clover pasture, the yield of corn is always heavy following that crop, and the bees store heavy crops of honey.

In a season when failures were very general in the Middle West the Fischers secured a crop of about 250 pounds per colony from sweet clover, and their cows had ample forage at a time when many pastures of common grasses were entirely burned out by drouth.

Frank Publicity

On page 481, R. B. McCain advocates talking freely about bee disease in the public press. He seems to think that other industries have not suffered from publicity concerning disease and for this reason sees no danger to ours.

The facts are that on frequent occasions some food-producing industry has been nearly destroyed temporarily by such publicity. It is only a few years ago that the newspapers carried stories about an epidemic of typhoid fever caused by oysters. As a result the consumption of oysters fell off to an alarming rate and the industry suffered irreparable injury. A similar injury happened to the poultry industry and consumption dropped so far as to greatly reduce prices and restrict the market. Meat consumption was definitely reduced also. Certainly our correspondent is not familiar with the effect on the various industries which he mentions of publicity concerning disease. Reduced consumption and consequent lowering of prices has happened in nearly every case where widespread publicity has been given to disease.

Newspapers have come to this office warning the public against the eating of honey because of the danger of contracting foulbrood disease. Does Mr. McCain think that can help the sale of honey? A correspondent who sells honey direct in a Middle West city writes us that his sales were recently cut in two by a news story about bee diseases which appeared in the papers of that city. Already the beekeeping industry has received serious

damage because of ill-advised publicity concerning bee diseases, and there is no quicker way to destroy the market for honey. Yet we all know that foulbrood cannot injure any human being. This should be repeated whenever diseases are mentioned.

Bees and Sweet Clover

The past season of drouth has demonstrated the value of sweet clover to both farmers and beekeepers far beyond the usual season. In many neighborhoods the farmers with sweet clover have had pasture for their cattle when neighbors who depend on the common grasses have had none. In several thousand miles' travel a member of our staff has found that beekeepers in sweet clover locations are getting at least some crop, while in otherwise similar locations little honey has been harvested.

A striking example may be mentioned in the case of E. W. Daniels, of Webster City, Iowa. A farmer in his county complained that last year he secured a poor crop of sweet clover seed. He asked Daniels to bring some bees to his farm to insure pollination this season. Daniels moved eleven colonies to the farm and as a result found it necessary to pile the supers on some colonies until they were nine stories high. The farmer secured 250 bushels of seed from twenty acres of sweet clover, so both profited greatly by the arrangement.

Sweet clover withstands drouth better than any other farm crop common to the Middle West, and this season it has been a lifesaver to many farmers as well as beekeepers.

Look Out for Poor Stores

The past summer has been disastrous for the bees over a wide scope of country. In many places little honey has been gathered, and, unless fed, the bees will die during winter for lack of stores. In many neighborhoods the bees are filling the brood chambers with fruit juice gathered from damaged grapes, decaying apples or similar source. Where broken watermelons are exposed, one can often see large numbers of bees gathering the sweet liquid to store in the hives. As long as the bees can fly freely to discharge the accumulated waste matter, they can eat such material without serious danger. In winter, however, when they are confined to the hive for long periods and cannot discharge the faeces, they are likely to develop dysentery, and then losses will be heavy.

Unusual care will be necessary this season in preparing the bees for winter if they are to be brought safely through. Where poor stores are present it is wise for the beekeeper to feed ten or fifteen pounds of sugar syrup to each hive after the flow is all over. This will be stored in the center of the brood nest and will be consumed first. In this manner the bees can be carried through the period of confinement. By the time they reach the poor stores spring will have arrived, and if they can fly there is likely to be little danger. Watch your stores.

Care of the Apiary

It is found useful to protect bees against winter extremes in our middle and northern states. Especially are the strong storm winds to be feared. So it is advisable to protect apiaries and colonies against them by using windbreaks and double-walled hives. In the olden days, in the time of straw skeps, colonies suffered less from the cold, for straw is a very good non-conductor of heat or cold. Nowadays, with the light pine hives in use, it is a good policy to have double walls, with a dead air space between.

We have been in the habit of sheltering our hives in the apiary with forest leaves or straw. Forest leaves are easy to gather in the woods, and they do not attract mice as does straw. For that reason we like them. We use a framework of lath and chicken wire-netting to retain the sheltering material. We leave the south side open. This is usually the front of the hive.

Be sure that your bees have enough food. Two pounds of sugar with one pound of water and 10 per cent of the amount in liquid honey make the best kind of feed for winter. Give it above the brood combs in such feeders as you prefer.

To winter in the cellar, we take the bees in during the first hard frosts of November. We leave both the cap and the bottom board on the summer stand, marking each hive so as to return it in its identical spot, in spring. We have long ago ascertained that many old bees remember their location after five months of winter and that there is likely to be some confusion if the hives are not returned to their identical spots.

Piling hives in the cellar, four or five in each stack, we place between them some honey boards or some of our straw mats. But we want them to have plenty of ventilation, a temperature of not to exceed 50 degrees, 45 is best. Plenty of air is needed, but the colonies ought to be in the dark, so they may not become restless. They are taken out on a warm day of March, sometimes as late as April.

The Sale of Honey

The man who has a honey stand, near the house on an automobile road, can usually sell a large part of his crop at retail. Consumers who have a taste for honey are apt to desire some when they see an apiary and a honey stand in close proximity. Good honey is always in demand. But not enough of it is offered for sale to establish a constant demand.

Montana's Disease Program

There is a great diversity in the disease eradication programs of the various states.

Montana takes a middle ground. O. A. Sippel is the State Apiarist under A. H. Stafford, Commissioner of Agriculture. The advisory board appointed by the Commissioner is a unique arrangement and appears to us to be a very good one. This board, composed of the president of the State Beekeepers' Association and six representative beekeepers, meets with the Commissioner and the State Apiarist, once or twice a year to plan the year's work. The entire situation is laid before them, with the needs of the different sections, the demands and complaints of the beekeepers and the amount of funds available for the work. With these facts in mind the board decides where the funds shall be expended and the general plan to be followed. In this way the work is directly supervised by the men whose interest it is designed to serve—the commercial honey producers.

At present the board consists of C. V. Fisher of Joliet, M. H. Misfeldt of Malta, Frank Clift of Huntley, A. L. Brotherson of Hardin, L. E. Baldwin of Fort Shaw, S. McPherson of Edgar, and Harry Rodenburg of Manhattan.

The present policy is to follow the area cleanup plan, covering about one-third of the state each year. When disease is found, if strong, the colony is marked and the beekeeper permitted to carry through until the close of the honeyflow. He is advised to kill the queen two or three weeks before the end of the flow, to permit the emergence of all healthy brood. The honey is then removed and bees and combs burned. The hives are saved by thorough cleaning with a torch or scrubbing with lye.

In this manner there is a minimum of loss, for the crop is secured before the bees are destroyed. By burning the bees and combs, there is a very effective removal of diseased material and a very small percentage of return infection.

Because the beekeeper feels that he is given a square deal there is usually very good cooperation and little complaint against inspection methods. A very important consideration is the fact that the beekeeper is given every opportunity to avoid unnecessary loss. To the man who must depend upon his bees for a livelihood, the loss of

a season's crop in addition to the loss of the bees is serious indeed. In this case there is very little actual loss, since the hives can be filled with package bees and new foundation the following spring and enough honey secured from the present crop to pay the cost.

Waste Land for Bee Pasture

An interesting letter comes to the editor's desk from an eastern beekeeper who says that he is near a swamp four miles in length. He has in mind to plant button-bush or button-willow there for bee pasture. This is an excellent idea and one that might be adopted much more generally. There are few localities without some waste land which might very well be planted to some kind of honey plants. The fact that beekeepers planted sweet clover so commonly for this purpose in days gone by may have been one reason for the general prejudice which was aroused against that plant. However, this general interest on the part of the beekeepers resulted in the spread of sweet clover along roadsides and in waste places to a surprising extent.

There are several other good sources of nectar which might very well be utilized on waste land to furnish pasture for the bees. The button-bush is particularly valuable for wet places, while the Indian currant or coral-berry, commonly called buck-brush, is equally good for dry hillsides. A little study of the honey-producing flora of a region will readily suggest something suited for any kind of soil.

Organized Effort

There is an old saying that we must spend money to make money. One thing that prevents the progress of apiculture's keeping pace with other industries is the fact that there have been no funds for organized effort to improve conditions.

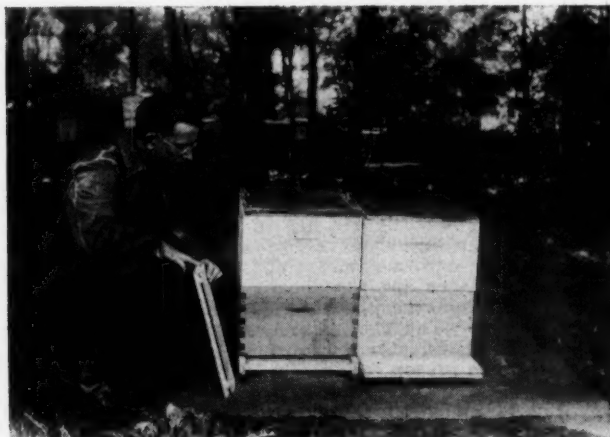
Those industries which are prosperous are well organized and have funds to see that their interests receive fair consideration, whether it be in the matter of tariffs, railroad rates, advertising or public support. The organization of the American Honey Institute puts beekeeping in line with present day activities. If the Institute is provided with sufficient funds with which to work, it will accomplish a great deal; otherwise little can be done. The American Honey Producers' League has always been hampered for lack of money with which to work. Let us hope that some means of financing these organizations can be devised. Neither interferes with the work of the other and both are needed. The Institute devotes itself solely to educational work in which it seeks to arouse the interest of the public in the use of honey and to find new uses and outlets for that product. The League is largely devoted to problems of legislation, freight rates and other questions of interest to the beekeepers.

Less Farmers Produce More Food

The recent census shows an increase of seventeen million in our population in a ten-year period. It is a well-known fact that the number of farmers has decreased during this same time. However, the output of the farms has increased, because of improved machinery and methods.

As an example, the writer was told of two men in the State of Montana who raised 1600 acres of wheat the past season. With the machinery now in use it is possible to seed a hundred acres in a day. Instead of having to cut the wheat with a binder, shock it by hand, haul it in with teams and thresh it with a large force of men, the combine removed the grain at a single operation. Two men were thus able to devote the same acreage to wheat that formerly occupied ten or more.

In the Northwest the beekeepers are following the same trend, and honey production is no longer the laborious business of former days. Large apiaries, power machinery and better bee pasture are keeping the beekeeper in line. One beekeeper of the writer's acquaintance, with the help of his boys, has produced about five carloads of honey this season. He has a large investment in supers, in trucks and equipment, but he reduces labor costs to a minimum and secures a profit even at the present low prices for honey.



First, set hives together on the bottom paper.
(See how tunnel is made)



Second, put up the packing form and fasten the corners.

How I Pack My Bees for Winter in Minnesota

An Economical and Efficient Method

By John F. Swanberg

SO many requests have come for my way of packing bees out of doors that it leads me to write a brief explanation. With this method, outdoor wintering can be provided for practically the interest on the money that would be invested in cellars.

When packing outdoors with the ten-frame Langstroth hive, I believe it is economical to use two full-depth bodies. Otherwise, the bees will have to be unpacked too early in the spring to give room for breeding, and the greatest advantage of outdoor packing will be lost—namely, protection during the period of spring brood rearing. My hives are set eight to fifteen feet apart in pairs, with about three inches between the hives. For packing, I slide the hives together.

For packing material, I have used clover chaff, leaves, planer shavings, buckwheat straw, wheat straw, and rye straw, and find them of value in the order named. Clover chaff from alsike and red clover that has been threshed for seed is preferred, as it is the softest to handle, and in the spring it sticks together so well when unpacking that the paper can be taken off before forking away the straw.

I use tar paper to hold the packing, and formerly tied down the top with twine, but I have now learned that hot asphalt can be used to better advantage. Previously I did not have a packing form and seldom got two cases alike, but last fall I hit on the idea of making a form. This prevents having too much packing in one place and too little in another, and the case stands up better in winter, because the packing can be put in more firmly.

How to Make the Packing Form

The pictures show how the panels of the packing form are made with



Third, slip in the paper loop.
(Swanberg says set the case around it, but we found this just as easy)

strips of half-inch cedar lumber nailed on a cleat flush with each end, with a short piece on the outside about six inches down from the top as handles. The panels are light to carry.

The inside dimensions are 32 inches by 44½ inches and about 32 inches high. The front and back panels should be exactly 44½ inches long and the side panels should be sufficiently long to allow for fastening hooks on the outside. Also, the form should come apart handily at all four corners.

To hold the tar paper loops in place inside the packing form, while I am packing, I use four pieces of tin folded, as in the picture, to project about three inches over the out-

side of the wood and six to eight inches on the inside lapping over the paper. These holders keep the paper snug and also keep the straw or chaff from getting between the paper and form while packing.

Making Up Packing Papers—A Rainy Day Job

The paper for packing may be made up any time at odd periods when there is little else to do. For packing paper, I have used many different kinds. The ordinary tar paper or tarred felt is about as good as any and the first cost is less than on some of the patent papers. Some of the tar paper can always be used two or more years.

The height of the paper to go around the hives should be five or six inches above the tops. If too high, it will not result in a good weather-proof job. Three or four inches more packing should be on top than on the sides to be sure that there will be no condensation of moisture on the inner cover to drip down on the bees.

For cementing the paper together, I find hot asphalt to be the best, and in using it one can make up the loops of paper to go around the hive and also make the pieces for the top and bottom, using old paper where possible. Hot asphalt is also handy in the yard to seal up holes with patches and to stick down the top and bottom pieces, as shown in the pictures. The asphalt should be very hot, but not boiling. The hotter it is, the less asphalt is required.

To make up the loops to go around the hive, clean off a place about fifteen feet long on the honey house floor, roll out the paper and cut off pieces the exact length of the inside

of the form with about a 2½-inch lap. Now place a board in the center and bring both ends together, lapping the 2½ inches and sealing with asphalt. This will make the loops so that you will get a well-shaped case and the paper will be tight around the packing. Do not make the loops too long, or the paper will be slack and the packing will fall out of place.

To make the top piece, cut two pieces four feet long off the roll and asphalt these together along the sides. It will make pieces 4x5 feet long from standard 36-inch rolls, and they will have the right curve to fit over the top of the case.

The bottom pieces should be about 3½x4½ feet, using old paper if you have it.

To put the asphalt on, I use a swab made of a stick with a rag around the end tied with a wire. Run the swab with the hot asphalt over the paper twice and it will stick better.

The Tunnels

The tunnels I use are made from two pieces of lumber, one four inches wide and the other six inches wide, the six-inch size for the top and the four-inch size for the bottom of the tunnel. Each piece is sixteen inches long, with a cleat set back so as to fit down between the sides of the bottom board as shown in the picture.

The Work of Packing

Place two colonies to be packed side by side, close together, on one of the bottom pieces of tar paper. Then put the loop of paper around the hive, lean the back panel of the form against the back of the hive, fasten on one of the sides, then the other side; now bring up the front panel and fasten at the ends; slide the whole form back till it fits snug to the tunnel. Even up the space at the ends of the hive. Finally put the tin paper holders in place, and the case is ready for the packing material.

Pack the back first to crowd the front of the form against the tunnels;

press down the packing so it will make a nice, firm job, and fill up to the top of the paper. Then start to round off, making the hump in the center about ten to twelve inches above the inner covers.

Now remove the form, fasten the bottom paper to the sides of the case all around with hot asphalt, put on the top piece, laying your hand on in the center and making sure that the paper is level and even at the ends. Swab on a little hot asphalt in the center of the loop at the top about five inches down, stick the paper to this, swab on more asphalt from the center out and press in place.

Do the same thing at the back, only pull the paper down tighter; at the same time pat the top firm to hold



Fourth, fill with packing material well heaped on top. (See tin strips along top edge of form to hold loops close and keep packing from sifting between paper and wood)

the paper till it cools. Asphalt the ends down in the same way and fold the corners around.

Then cut out the holes in the front so the tunnels will be open and the

bees can get out. The case is now done and the bees well protected.

With a little practice this can be done fast, neat, water proof and wind proof, resulting in a practically air-tight wintering case.

The Cost of Packing

With an abundance of packing material at hand, the cost of packing outdoors is greatly reduced. Because of the handy form, twice as many hives can be packed as I used to be able to do when I did not use a form. It is not so hard on one's patience.

Paper costs per hive will run between 15 and 25 cents, depending on whether all new paper is used or whether old paper may be used for the top and bottom pieces.

Labor cost is hard to figure because of differences in localities and people. I have packed sixty colonies a day with a good helper, and I think more could be packed if we eliminated a few wasted steps.

Asphalt can be bought for about three cents a pound. It comes in cake form, hard and brittle, and enough can be secured for 75 cents to pack a hundred hives. Heat the asphalt on an old kerosene stove or with a blow torch. A blow torch is better and handier to move from place to place.

Parkers Prairie, Minnesota.

Barnes, of Nebraska, Some Bee Man

Ralph Barnes, of Morrill, Nebraska, operates twelve hundred colonies of bees, producing between two and four carloads of honey a year. In addition, he has two hundred mating colonies, yielding about one hundred queens every ten days.

We must not forget W. R. Brandt, of Mitchell, however, who operates seven hundred colonies and bottles and ships honey; J. L. Randall, of Bridgeport, with eight hundred colonies, and our old friend Elmer T. Kennedy, of St. Edwards, with an equal number. J. B. D.



Fifth, take away the form and cement top and bottom pieces on with hot asphalt.



Sixth, cut a way into the tunnels and move on to next set of hives.

Packing Pays Its Costs

By V. E. Dehart

Take your choice. Here Mr. Dehart tells, to his satisfaction, how packing pays its cost. On page 479, opposite, Mr. Thomas gives pretty good figures to show that packing is not a prime necessity. Dehart lives in North Carolina and Thomas lives in Montana. So their viewpoints are surprisingly opposite from what one would expect. We venture the editorial opinion that the facts of wintering are not yet all known. Apparently, if bees can move to stores in winter, cold does not kill them; if they die, they really starve to death. Anyway, read what both Dehart and Thomas have to say.

READING the article by H. F. Wilson, on page 28 of the American Bee Journal, my experience agrees with his article to some extent, but not in the packing. My experience is to pack your bees as if you expected every winter to be a hard one, and give ventilation according to the size of the colony.

The $\frac{3}{4}$ -inch holes recommended by the Government will not do in spring. First, they do not give enough ventilation; second, bees carrying in pollen will lose their load trying to enter.

I believe the worst trouble beekeepers have with packing their bees is not packing them early enough in the fall, and then removing the packing too early in the spring. If you do not pack your bees while the weather is warm in the fall, the bees will be late on returning from the field on account of the change that has been made with the packing, and the bees will wander around until chilled by the cold and will die. If packed while the weather is still warm, they get used to the change and can get in the hive before they have to rest.

If the packing is removed too early in the spring, the same thing will happen, and I also find, by leaving the packing on until just in time for the honeyflow, the bees are ready to gather it, provided the weather is favorable.

With a packed colony and one that is unpacked, I find in the spring that the unpacked colony has consumed enough more honey than the packed colony to pay for all the packing will cost. And as the weather changes in the spring, the queen in the unpacked hive will change; that is, when the days are warm she spreads out in egg-laying and there will be a few cold days and she quits, while the queen in the packed hive goes right on with her egg-laying as if she thought the days were still warm. I have unpacked colonies in spring when I thought the weather was settled and had colonies with brood scattered all through the ten-frame hive bodies and a sudden cold spell came and killed the young brood that would be in the outside frames.

At first sight you would think foul-brood had got them. But if they had

been packed, all of this brood would have been saved to gather honey. I would suggest to beekeepers, where the temperature goes below freezing, that they pack their bees good and give them sufficient ventilation.

I use the Government method, except the entrance. I cut out a $\frac{3}{4}$ -inch entrance 6 inches wide, and, if the colony is extra strong, make the entrance 8 or 10 inches wide, and when real cold weather is on I take some newspaper and pack it in to reduce it, and take it out as need be.

Beekeepers, before you give up packing, try a few colonies at first with and without packing. Select colonies that are about the same strength and with the same amount of honey and everything about equal, and pack them early and have the packing on till late spring. I don't care how much packing you put on them, just so you give them enough ventilation, and leave a few unpacked or with less packing and see the results for yourself.

North Carolina.

Mountain States to Establish Warehouses

A. W. Anderson, field agent of the Mountain States Honey Producers' Association, returning from the Uintah Basin industrial convention at Fort Duchesne, with T. L. Ball, of Ogden, president of the Utah Beekeepers' Association, brought news that the Mountain States Association will establish bottling plants and bonded warehouses throughout the West.

One of the plants will be established at Salt Lake, it is reported, although the central warehouse is likely to be placed in the Middle West at a railroad center, to confine the crops under government bonds as collateral for loans from the Federal Farm Board to assist the cooperatives in marketing the honey crop in fourteen states, all of which are in the Association.

The eleven western states, with the exception of California, are already in the Mountain States Association, in addition to a number of states in

the Middle West. California beekeepers are expected to join.

Nearly half a million dollars has been made available to the Association by the Federal Farm Board at a low rate of interest, but a small amount of the money has been used, because the Association has been unable to store the annual crop in bonded warehouses according to the requirements of the federal creditors. Negotiations are being conducted by the officers of the Association also to the end that more equitable shipping rates may be obtained.

The full amount of the loan will be available as soon as warehouse space is provided at strategic shipping points, which may mean toward the eastern end of the producing area, since the major market for western honey is in the East and in Europe.

G. P.

Feeding Without Opening the Hive

By S. F. Haxton

The division board feeder is excellent as ordinarily used, but requires removal of the inner cover of the hive for filling it, with consequent disturbance of the bees. I use division board feeders altogether for fall feeding in a way that obviates the slightest danger of robbing and makes feeding quick, simple and easy.

This is the way: With a brace and bit, bore a hole about three-quarters of an inch in diameter in the inner cover or escape board near one of the long sides, about two inches from the outer edge. Under this hole put the division board feeder, fill it with a funnel, then close the hole with a cork. Repeat the feeding after the bees have taken up the syrup until the desired quantity has been given, all without fuss, muss or opening the hive.

My division board feeders are the length of a Hoffman frame, and the width of two frames. They have no top bars, but cleats at the ends project to form supports and fit into the rabbets in the hive. They hold about a gallon of syrup, which is poured into them with a common sprinkling can with the sprinkling top or rose removed. Fifty colonies may be fed in an hour. A little experience in listening to the flow of the syrup into the feeder will enable one to judge the height of the syrup. I winter in two-story hives and often leave the feeders in the hives over winter.

An Easy Way to Make Syrup

Making syrup for fall feeding is so easy and simple! Years ago I used to heat water, dissolve the sugar in it carefully, heat the syrup almost to boiling, add tartaric acid or cream

of tartar, and follow all the old-time rules.

Now I simply run a few inches of water into a wash tub (a new one not used for washing), pour in a sack of sugar and stir it a while. Next day the syrup is ready and is dipped out into the sprinkling can and poured into the feeders. Any sugar that does not dissolve is dissolved when the next batch is made. It is better to let the mixture stand over night so the syrup will clear up and so that all the sugar that will not dissolve will settle to the bottom. The syrup is clear, or is a "saturated solution," as a chemist would describe it (containing as much sugar as the water will carry), never crystallizes when fed early—at least in this locality. The American Bee Journal has recommended feeding a saturated solution of sugar and water—and it works to perfection!

Bakers' Weekly Features Honey

In the July 19 issue of Bakers' Weekly, a publication issued each Saturday for the interest of the baking industry, there appears on page 71, under the title "Honey Rolls," an article describing pastry products filled with a honey filling. The recipe given is for large mixtures for bakery purposes.

On page 72 of the same number is an article on "French Ginger Break, or Honey Cakes," known as pain d'épices in French. The business of making pain d'épices falls into the category of major industries in France. The French people accustomed to this type of ginger break or honey cake as children, keep the habit with them all through life.

The article describes the history of French honey cakes back through the centuries until since 1850. The pain d'épices industry of France has become a formidable one and forms a large part of the stock of practically every grocer in their country.

Children in France are given pain d'épices because it is considered a healthful, wholesome, delicious food. This French type of ginger bread is served with butter or with a jam and has a delicacy which is highly individual.

The article then goes on to describe the different types of pain d'épices and how they are made, including the Dijon type, the Rheims type, Nonnettes and Fancies.

The article is by Oscar C. Zilisch, a representative of Bakers' Weekly in Paris.

This is not the first time that articles of this sort have appeared in this publication, and it is evidence of the further work of the American Honey Institute, which has been very active in the baking field during the past several years.

Packing Not a Prime Requisite

By Archie I. Thomas

I HAVE been carrying on an experiment since the spring of 1927, to find the amount of packing required in northwest territory; to see if cold weather will kill bees under certain conditions, and to learn the effect of wind on bees in winter. My conclusion is that cold weather or low temperature does not materially affect bees and that packing is not a prime requisite.

Here are the conditions to which the bees were subjected in the experiment: Four colonies of bees, consisting of about six pounds of bees to the colony, two colonies in standard Langstroth ten-frame hives, one colony in hive of standard length, 12 inches deep, six frames, side walls of hive 3/16 inch thick, ends 1/4 inch thick; one colony in hive standard length, ten-frame, 12-inch depth. Material of 1/4-inch thickness.

For convenience, I will call the first two colonies 1 and 2, the six-frame colony 3, and the home-made Modified Dadant 4.

October 1, 1927, all hives full of honey and at least six pounds of bees per hive. No winter protection other than a windbreak. No extreme low temperature in November or December. Latter part of January, 45 degrees below zero. Longest time confined without flight, four weeks.

Condition of colonies 1 and 2 on May 1, 1928: All bees dead. Three frames in center of brood nest empty entirely. About twenty-five pounds honey in each hive.

Colony No. 3: About one pound of live bees, in excellent condition. Stores practically exhausted. Feeder above cluster on May 1. Colony built up fairly strong by end of yellow sweet clover flow.

Colony No. 4: May 1, 1928, excellent condition. About four pounds of bees. Very few dead. Plenty of stores for brood rearing. Very strong at beginning of yellow sweet clover flow. Made 275 pounds surplus for season, comb honey.

Winter of 1928 and Spring 1929

Colonies 1 and 2 were protected by placing on a bench and wrapping with cloth heavily and located on south side of house. Colony No. 4 left on summer stand, only shelter built for wind protection. In January and February, temperature 57 degrees below zero. No flight for six weeks.

Condition on May 1, 1929: Colonies 1 and 2 nearly all dead; queens living. Not more than one-fourth pound bees alive at this time. Plenty of stores in hive, but, as usual, three frames empty in center of brood nest. Bees could not get to other stores at

edge. Starvation results. All dead by May 15, 1929.

Colony No. 4, that was left on summer stand with no protection except from wind: Bees and stores strong as horseradish. Made another large surplus season.

Winter of 1929

Colonies 1 and 2 without any protection from wind or weather. All dead by January 15.

Colony No. 4, May 1, 1930: Fair condition. About three pounds of bees and enough stores to build up with the help of dandelion. Queen four years old.

You notice that colonies 1 and 2 had to be new colonies with young queens each season, as they died every winter. I could give this subject more in detail and thorough, but it would take too much room.

Will say that I kept temperature charts by graphic curve method and made examinations of conditions of colonies whenever the temperature and weather would permit. My final conclusion was that a frame of less than 12-inch depth in this location is not practical even though you used the costly methods of packing or cellar wintering; that it is practical with the right equipment to winter bees on their summer stands behind a north and west shelter built without packing.

Many will not agree with me, but final proof has convinced me, and I am going to start with this method and Modified Dadant hives the next season and see how long I last.

Montana.

Dodder Vine Fatal in Texas

Beekeepers of Zavala County report many losses of bees from dodder vine, usually known as the "love vine." It is very poisonous, usually resulting in immediate death of bees feeding on it.

In some apiaries the loss is reported to have run as high as 50 per cent, due to the fact that many of the flowers on which bees ordinarily feed have dried up from the drought which has prevailed over so much of the South.

W. H. M.

Bees and the Fire

An old tree near Alhambra, Montana, was afire. Men rushed to fell it and found that it was the home of a colony of bees that resented the invasion. Some of the men fanned the bees with coats while others cut out the burning section, saving the bees' home and preventing a forest fire.

J. B. D.



Jonathan blossoms in irrigation ditch in Delicious orchard

Controlled Pollenization of the Apple

By J. C. Hopfinger

WHILE this article is mostly one of the perplexities of the fruit grower, it also is of great interest to the beekeeper.

In the north central part of the great state of Washington there are thousands of acres of apple orchard. The greatest activities in planting trees were carried out about 1910 to 1914. Then, as now, the Delicious apple was the favorite tree to be

planted. Few provisions were made for the proper varieties to serve as pollenizers for this tree. Here and there some growers planted a few Rome Beauties for this purpose, but on the death of the latter, for one reason or other, the vacant places were filled with more Delicious.

On the Bridgeport Bar, some eighty miles north of the city of Wenatchee, there are now several hundred acres of solid Delicious orchards. The trees are in excellent shape and condition, but for some reason would not set any crops. Spring after spring the trees came out in the finest blossoms anybody could wish for, but no apples.

All sorts of remedies were tried; frost was blamed, expensive heaters installed, and hundreds of tons of briquets were burned up, to the joy of the coal miner, but a total loss to the fruit grower.

Last spring an up-to-the-minute grower, Lloyd Milner, hit upon the idea of controlled pollenization. He hung a water-bucket full of blossoms of the Jonathan apple in each tree, rented a hive of bees for each acre of orchard, and his success was 100 per cent.

This spring a stranger driving through this place would think the place was preparing for one of the famous Washington blossom festivals. Truck load after load of Jonathan blossoms are hauled into the Delicious orchards and buckets are bought by the thousand. One crew goes ahead and prunes all the available Jonathan trees, then crews of women and girls make bouquets which are put in the

buckets; another crew hangs them into the Delicious trees. Next come the water carriers, who fill the flower vases.

One grower, Bert Berry, uses big twenty-gallon cans, into which he places large limbs of Jonathan trees in full bloom, locating them in the middle of a square of Delicious trees. A fifteen-acre tract, which averaged some 5,000 boxes a year, last year



Bees shipped in and hived, ready for business



Twenty-gallon can holding large Jonathan limbs

through this treatment packed some 14,000 boxes. A hive of bees to the acre is considered necessary.

Now to the bees. This spring about two hundred packages were shipped in from California. All the available bees of nearby beekeepers are rented at five dollars the hive. The bee men not only get the money for the use of their bees, but also the hives are filled full of the finest apple honey. Some of the growers who buy bees in packages put them in apple boxes, furnished with a few frames and foundation, and after blossom time leave them to their own device. Along about July the heavy spraying gets them, and by fall they are all dead.

Some other fruit growers move their bees into the Methow Valley, and if they get them through the summer are well satisfied. Last summer we moved some fifty hives into the Grand Coulee, where they made a good living on sweet clover and alfalfa on a large stock ranch. Honey is no object as long as we can carry the bees through the summer alive.

All the growers have been grafting their Delicious trees, at the rate of about one tree to six, to winter Banana or Jonathan trees, and in four or five years the cutting of blossoms and putting them out in buckets will be eliminated.

The bee, however, will always be necessary, and the wide-awake beekeeper near apple growing districts will work with the grower for the mutual benefit of both.

Washington.

Let's Discuss Disease Frankly and Without Fear

By R. B. McCain

Practically all of the bee papers published in the English language have recently contained articles or editorials on the inadvisability of discussing the subject of bee diseases in the public press. Some writers go so far as to say that the bee papers should make the subject taboo. The reason assigned is that such discussions hurt the sale of honey. Where there is such unanimity of opinion among those who ought to know, there must be at least some foundation in fact for the belief. But, somehow, the arguments presented seem to lack convincing power.

Theoretically, it is easy to give assent to the proposition that the discussion of the subject of a bacterial disease in connection with the production of a food product would have a bad effect on the sale of that product; but does anyone know that this has actually happened in the case of honey? Experience is a pretty good teacher; and the experience of this writer during more than a quarter of a century in handling bees and honey, and in dealing with people in



Buckets filled with blossoms, ready to hang in trees

public and in private, leads him to say that he has never known of a single instance where the use or sale of honey was affected adversely by the frankest discussion of bee diseases. Others may have had different experience; if so, let them tell what they know to be a fact, giving authentic cases, not theories or opinions.

Turning aside, for a moment, to other food products: Does anyone think that the sale of milk and other dairy products is lessened on account of the discussion of tuberculosis in cattle? The testing of herds goes on continuously, and the inspection of dairies and creameries is a matter of monthly practice. Milk tests are made frequently, and the results are published in the daily papers in terms of bacterial counts. Instead of suppressing such information, the owners and operators of these businesses want the public to know that steps have been taken to make and keep their products clean and pure. No effort is made to suppress public discussion or to withhold knowledge of these disease-bearing germs from the people.

The same may be said of eggs and the discussion of diseases among the flocks of the poultrymen; and what is said of milk and eggs may also be said about fresh meat and other products of the meat packing industry. The greatest possible publicity is given to the fact that these food products may contain germs that are injurious to human beings; but, at the same, time, the public is made to understand that proper steps have been taken to keep these food products free from deadly germs. No one is deterred from buying milk and eggs and meat by these discussions. Why should it be thought that the mention of the cleaning up of apiaries would keep people from buying honey?

But if we are bound to theorize about this matter, let us not forget

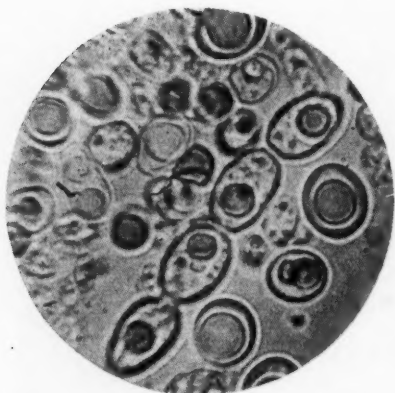
that the readers of daily papers and other publications are more or less enlightened. They are well used to public discussion of disease germs of all kinds. If the reading public was more ignorant and superstitious, or if we were dealing with a different age, the case might be different. But the modern man, being what he is in knowledge and enlightenment, respects frankness as much as he disrespects secrecy. The most effective way in which to arouse suspicion and distrust in the mind of the modern man is to give him reason to think that you are trying to hide something and that there is a phase of your business that you are afraid to discuss in public.

What is here said is not intended to mean that discussion of bee diseases should occupy space in papers that far better might be used to exalt the food value of honey. It is rather an effort to present the view that it is possible for us to frighten ourselves with a bugaboo of our own creation.

Current Prices in West

According to the honey report, No. 43, from the Federal State Marketing Service, issued at Sacramento, California, on August 30, prices for honey range as follows: Orange honey, from 8 3/4 cents per pound down to 7 1/4 cents; sage honey, from 7 cents to 5 cents; sage and buckwheat, from 6 cents to 5 cents; buckwheat, from 5 1/2 cents to 5 cents; star thistle, from 6 cents to 5 cents; alfalfa, from 5 cents to 4 cents.

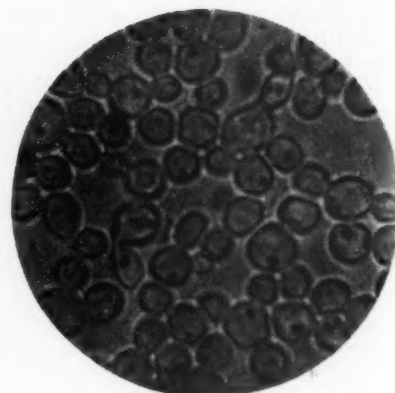
These are for actual sales and offers reported by beekeepers and dealers for amounts ranging from a thousand pounds up to carloads. They indicate low prices in spite of the short crop. The demand for honey is not as good as it should be, with the present tight money situation, but probably we are no worse off in this respect than most food producers.



Yeast cells multiply rapidly when conditions are right



A larger picture of yeast cells to show detail



Typical yeast cells as they appear in honey

Cornering the Microbes of the Apiary—Part Five

By H. F. Wilson and G. E. Marvin

How Yeasts Affect Honey

YEASTS are single-celled fungi, which multiply by budding. In viewing this process, one sees tiny bud cells developing on the sides of the older cells, and these continue to enlarge until they have reached a certain size and then they split away from the mother cells and after a time throw out their own bud cells. These cells are usually much larger than bacteria, although some species are quite small. The yeast cells are mostly separate from one another, but in old cultures and under certain conditions these cells remain united in chains, each cell being a distinct unit.

Yeasts are able to develop in two different conditions. They are able to live in contact with the air and respire. In other cases they are able to live and develop in air-tight containers. But they are able to do this because of their power to abstract oxygen from the substance in which they are growing.

Their principal purpose in nature seems to be for the conversion of sugars of various sorts into alcohol by splitting the atoms of sugar into alcohol and carbon dioxide gas, the force which causes the tops of fruit jars to bulge, the corks of wine bottles to pop, and the bursting of honey containers.

A molecule of sugar expressed by this formula, $C_6H_{12}O_6$, contains six atoms of carbon, twelve atoms of hydrogen and six atoms of oxygen, which when acted upon by yeast produce two parts of alcohol expressed by the formula $2C_2H_5OH$ plus two parts of carbon dioxide gas, expressed by the formula $2CO_2$, or $C_6H_{12}O_6$ sugar equals $2C_2H_5OH$ alcohol plus $2CO_2$ carbon dioxide.

In the process of fermentation, energy is also developed and one molecule of sugar while being broken down to form alcohol will develop

twenty-two units or calories of heat.

In the process of making vinegar, it is necessary to first start with alcohol, and the original method was to take wine and inoculate it with vinegar bacteria having the power to change the alcohol of wine into vinegar, which contains two atoms of oxygen, expressed $C_2H_4O_2$, or acetic acid (CH_3COOH). So that in the process of making honey vinegar the sugars of honey are first changed into honey wine by the yeasts and then into vinegar by bacteria. The "mother of vinegar" so often used for this purpose is nothing more or less than a mass of many million bacteria which follow the yeasts in changing the alcohol into acetic acid, the sour taste of vinegar.

Wild yeasts and bacteria. Very often one attempts to make honey wine (mead) or vinegar and the result is unsatisfactory because of a bitter flavor or "taint." Of the many yeasts that are capable of fermentation, most of them have different characteristics, as do bacteria, and each may produce a different flavor. Some produce flavors that are palatable and others produce flavors that are bitter or very unpalatable, and if a bad yeast or bacterium is introduced into the honey mixture the results are sure to be disappointing.

Enzymes

The term "enzymes" is not in any sense of the word new. And perhaps some of our beekeepers have an elementary knowledge of enzymes. But there are undoubtedly many who do not, and since a new word is constantly appearing in our beekeeping literature, it is important that our beekeepers become familiar with enzymes and the particular enzyme known as diastase.

Diastase is an enzyme which is so commonly found in nature that its occurrence in honey does not seem

important from that standpoint alone. However, since the German importers began using it as a measuring stick for measuring American honey, the term has frequently appeared in the bee journals, and it is well that we have some understanding of the nature of diastase and enzymes in general.

Enzymes are rather difficult of definition, for they are not themselves visible. The results of enzymic action are, however, visible, and certain enzymes can be separated and classified. It is also possible to precipitate most of the enzymes into a powdered form with chemicals. Such terms as diastase, invertase, amylase, sucrase, maltase, and many others with the same "tase" ending, ordinarily refer to enzymes. Enzymes are commonly found in nature and have the power of assisting in chemical reactions between certain substances without becoming a part of the products developed. They have the power of digesting certain substances and are involved in practically all phases of food digestion and assimilation by both plants and animals. In the digestive tract, enzymes have the power of converting ordinary food substances into simple products that can be absorbed. Starch, one of our most common foods, which must be changed into invert sugars before it can be absorbed by the blood stream, is acted upon by the enzyme known as diastase. The action on the starch begins with enzymes in the saliva of the mouth. The process is continued to some extent in the stomach and is finally completed in the intestines, where the invert sugar is absorbed into the body. Yeast cells produce enzymes which, even when the yeast cells are destroyed, have the power to cause fermentation of sugars. In the case of animals, enzymes are formed and secreted by special organs which may be defined as glands.

Some of these glands secrete only one type, while others may secrete several of them. In plants, enzyme secretion also occurs in the form of juices of certain fruits, as the pineapple, and it is well known that starch in plants is changed into cane sugar, which in liquid form flows to all parts of the plant, and a part of it enters the nectaries, where it is available to the bees. The changing of the cane sugar secured from plants into honey through inversion is also caused by an enzyme supposed to be produced within the body of the bee.

Organization Counts

Beekkeepers are living in a day of organized society. The butcher, the baker, the candlestick maker and all other business industries worthy of their name have their organization, local, state, and national, and rightly, as it is impossible for any individual to do any great good in this day and age.

Some years ago I called on our Governor about putting bee laws on our statute book that would be practical. The Governor said to me, "Have you an organization, and how many members?" which information I imparted to him. Said he, "Go before this body and secure from them a concrete plan of just what you want, appoint a committee to confer with the committee here, and you will get results." This is conclusive proof that we must organize. Last year at the organized agriculture meeting we had as one of our speakers Mr. Stone, of the Federal Farm Board, and in his address before the group of master farmers on the evening of January 7, 1930, he said: "The Farm Board is not going to come out here and look up each farmer and ask where is his individual trouble. No, no. You must organize yourselves into a group and decide just what you want. I feel very sure we can assist you, but first you must organize." And so it is with the beekeeper; we must form ourselves into an organization, and the larger we are the more influence we will have. A committee of four men was appointed and we now have a splendid bee law in our state. This year we have as our bee inspector Mr. Gate, of Lincoln, and Mr. Bare, extension entomologist, to help us with the bee work. We were indeed fortunate in securing the service of these splendid and competent men. We are now to establish several demonstration bee yards in our state where a given amount of hives are handled by the local beekeeper in his accustomed way and an equal number handled by the extension man, and as we come to the end of the season a comparison will be made, and the method which produces the most honey with the least amount of work will be the one

adopted. A new day has now dawned for the Nebraska beekeeper, and within a few short years our state will be among the leading states in honey production.

V. W. Binderup, President,
Nebraska Honey Producers' Ass'n.

Hornets in Egypt

The "Bee Kingdom," published at 9 El Moez Street, Matarieh, Cairo, Egypt, is a very interesting magazine. In its April number it warns its readers against hornets. It appears that those insects are very much to be feared by bees, and the magazine explains the methods of killing them. The Egyptian Government pays a premium on hornets killed, and an evidence that they are injurious to apiaries is given by the statement that "to leave an apiary entirely alone in the hornet season in an infested district is unpardonable, since it will probably mean its

complete destruction." We are certainly lucky, in the U. S., not to suffer from such a scourge.

Honey for the Eyes

I noticed the article by Jes Dalton in your September Journal on this subject, page 440. A man came to my truck last year and told me that he had a cataract growing on his eye. The doctor said his eye would have to be operated on. He had bought a jar of my honey at the store and used it three times in his eye, one drop at a time. He said the cataract was entirely gone and his vision was clear.

This is the first I ever heard of honey being used for the eyes.

Edwin A. Smith, Oklahoma.

(We are quite willing to insert these testimonials, although we have doubts of the possible cure by honey. —Editor.)

An Inexpensive Way to Winter Bees

By John Stibal, Jr.



You may be interested in this picture, which shows the method I use for wintering bees outdoors.

The hives rest front and rear on old railroad ties which are set in the ground so as to give the desired slope from rear to front. An extra super filled with a sack of tree leaves is placed over each hive to absorb moisture. A few sheets of newspaper are placed at the sides of the end hives and then the whole packed with oats straw. There is thus about four to six inches of straw above, below and at the sides and rear of each hive. The whole is covered with galvanized corrugated iron roofing to keep off rain and melting snow, the lowest sheet of roofing at the rear being nailed to the railroad tie. I use three sheets of the roofing for each unit. The prints show five hives on the

south side of a brick building, which in summer are shaded by a large apple tree. The pictures were taken on a warm day in February, showing the bees out in good style.

In the spring I move the outside hives away from the others a few inches at a time so as to provide room for working about them, although there is room to get at them from the rear, and also to make room for an extra hive in case of swarming. I have used this method for several years, having copied a part of the scheme from C. J. Wertz, a local beekeeper, and have never had trouble with drifting or fighting among bees which mistook their hives. The great advantage is the small amount of time necessary to pack them for winter.

Nebraska.

Trouble With the Beemoth 'Way Down South

By Alfred H. Pering

JES DALTON gives an interesting account, in the April number, page 179, of his observations on leaving storage combs on colonies through the winter to save the labor and trouble of removing supers and returning them again when the first honeyflow begins in the early spring; also to allow the bees to care for and protect combs (presumably against moth).

In reading it over, it reminds me of some of my experiences since coming to Florida from Indiana. In Indiana the moth is controlled by using carbon disulphide and storing the combs during winter where the cold will retard breeding of the moth. Of course, the breeding season there is shorter than here.

In Florida one has to keep a "weather eye out for them" most all the time. Disulphide must be used over and over all winter on combs kept away from the bees. Strong colonies will give the beekeeper little watching to do, however, for moths. It is the weaklings and queenless colonies that must be watched.

When I say queenless, I mean during the time when a laying queen is not present. With me, it seems that so long as a colony is without a laying queen, or one that has been mated, the bees give the moth miller a free hand in egg laying. The worker bees seem to lay down on the job until their future generations are assured by the presence of a mated queen. I have watched colonies that swarm. Even though there be plenty of queen-cells and other conditions favorable for future prosperity of the old colony, the bees allow free access to the egg-laying moth miller.

Before I came here, I had heard that, in the South, bees would swarm themselves to death. I conclude this theory was based on the experience of persons who allowed afterswarming, and that, before the queen was mated, these pests got in their work and the old colony went down.

I have tried allowing afterswarming myself as an experiment to see. In most cases, where only one swarm is cast or where only one afterswarm is sent off, there is little or no trouble. Usually, however, the period which must elapse before the last queen emerges and is mated is too long and the moth will do mischief. This applies to the combs stored above the brood, whether they contain much or little honey, green or ripe, or whether it is summer or winter.

Some may wonder if it is possible that bees swarm in sunny Florida in winter. Well, they do if conditions are right. Of course, it is rare, but when queens are being superseded

and a good supply of honey is on hand, with a few days of our nice, balmy weather coming along at the same time, an occasional supersedure swarm will issue.

Of course, this locality is much farther south than that of Mr. Dalton's. Here bees will gather a little nectar and some pollen practically every day of the year. When these late or winter supersedure swarms come off, look out for your storage combs if they are left on the hives.

Here is another thing that happens to me: If I leave too many supers on all winter, the bees will only protect part of them. If a queen excluder is not used, the whole cluster will move up and, as Mr. Dalton says from his experience, we have scattered brood nests.

Sometimes when queen excluders are left on all winter and storage combs above, if there are too many supers, the bees will propolize the entire excluder all over tightly, shutting themselves below. Then the moth will riddle the combs above in a short time.

The moth miller can fly and lay most any warm winter day. Cracks and crevices are found in which to deposit eggs, so that when the little larvæ hatch they can eat their way through. The warm days and cooler nights cause contraction and expansion sufficient to crack the best job of propolizing the bees can do. The brittle propolis cracks enough to allow the moth larvæ to creep or eat its way in above these completely propolized queen excluders, and if you don't watch, your storage combs are soon gone.

I have never tried Mr. Stevenson's way of placing building paper immediately above the brood cluster with a hole in it for the bees to pass through and protect the combs above. I think I shall try it. It seems practical, but my experience leads me to believe that the number of supers which may be left above for all-winter protection is limited. I would guess not more than two.

When I used the queen excluders on all winter, with one or two supers above, the excluders were not unduly propolized. The usual amount of burr-combs with a few patches of the wires completely closed were found, but where too many supers were left the bees completely sealed themselves below and the combs above were lost entirely or damaged considerably before I found it out.

These sealed excluders were some job to clean and get in shape to use. When weather is too warm for the propolis to become brittle and crack off easily, it was a puzzle to know

how to get it from the wires without damage to the wire spacing. I tried placing the excluders over night in a refrigerator. This helped some, but here, where the pine forests are turpentine, the bees seem to be able to get hold of a very tenacious gum.

This everlastingly sticky gum may not come from the pines, but it comes from somewhere and is by far more difficult to remove than any propolis I ever had to contend with in Indiana. I may not have hit upon the best plan to remove it, but the most satisfactory one yet tried is to use a painter's torch. To boil the excluders in water does little good. Enough propolis will stick to the wires to close them sufficiently so as to prevent the passage of the bees, and then they immediately finish closing the entire passageway.

On last analysis, the proper thing to do is to use the big hive, into which I am gradually transferring all my bees. The excluder is then not necessary. The Modified Dadant hive with a normally strong colony will care for two supers of storage combs whether these combs contain considerable honey or just scattering patches. You do not have to bother about whether such colonies are in need of more room when the early or intermittent honeyflows come, and you do not need to worry and watch so closely for swarming.

Of course, some queens will "get old" before they are expected to do so, and, in spite of all that I have yet been able to do, an occasional supersedure swarm will issue.

I find that I have less trouble on account of swarms since beginning the use of a couple of the Aspenwall slotted dummy frames, one on each side. This reduces the breeding room to nine of the deep frames and affords clustering room for the newly hatched bees that are passing the time before maturing and acquiring sufficient strength to go to work.

My swarms come from the eight- and ten-frame hives, in spite of the practice of the Demaree system of swarm control. This method of control has to be repeated to become wholly effective, and it is difficult to be able to know when to repeat. The large hive is by far the most satisfactory.

Too Much Packing

When I had only a few colonies, I used to baby them in the fall and pack them, but I lost more bees by starting brood rearing than any other way. Now I let the sweet clover grow on the north and west of my hives, and the first snow will cover them as much as ten feet.

Last year we had an awful wind with the first snow and it blew off five of the wood covers from two-

story hives. When I went out in the bee yard in the spring to dig them open, I was surprised to see five large yellow spots on the snowbank. When I got to them I could see the bees way down at the bottom, about five feet below, just as dry and in the best of condition. Snow is the best covering, but sometimes the bee will melt a space around the hive about three feet across and a layer of frost and ice will form a dome in this hole, and to overcome this I have a fishpole to stick down in the snow to make a breathing place.

Charles Okins, Minnesota.

Sun-Lit Hives— A Season's Experience

By G. E. Pollard

AFTER reading the articles by Professor Bruchanenko and Mr. Igoshin on bright hives (American Bee Journal, February and May, 1930), I decided to give it a try, and made up eleven standard ten-frame hive bodies with glass panels in both ends. Panels were five and one-quarter inches wide and double. Also made up three standard, ten-frame hive bodies with double panels, the same size, of celloglass.

Six of the glass-paneled hives were held for packages from the South and eight were used to which to transfer old colonies earlier in the season. I have kept no books and have done no scientific work. The experiment was simply to see whether the sun-lit hives were worth the extra trouble and expense for commercial production. The hives were not kept together, but were scattered through a yard of fifty-five colonies, except that the six packages were in a row.

In the May number we find many claims for these hives that would make them seem to be worth the extra expense and labor, but I have failed to verify any of these claims, with the possible exception that the bees seem a little more gentle. This trait is not marked enough to warrant a definite statement.

I found that the queens would go up from a bright brood chamber into a dark super just as readily as from a dark brood chamber. As far as I can see, there is no difference in honey production in the old colonies. The packages did not do as well in the bright hives as in the dark. This was very noticeable.

Fourteen packages in dark hives all had supers before any of the six bright hives needed them, and at this date (August 4) eight of the dark hives of packages have two supers almost full and the other six have one almost full.

Not one of the bright hives of packages has two supers, and only one has over five frames of foundation in one super drawn out. All

these bright hives face the south and all have sunshades that were put up June 15.

The packages were hived at the same time, May 3, and all came from the same place. The difference here is so marked that I will avoid bright hives for packages in the future.

One bright hive went foul with American foulbrood, and two in dark

hives. This was one thing which I had hoped the sunlight might help, as it is well known that germs will not live long in bright light and die quickly in the direct rays of the sun.

After one season with the fourteen bright hives, I would not advise anyone to go too strong on them until they have tried out a few.

Montana.

Is Honey Acid Forming or Alkaline?

By John H. Rosser

What place does honey take in the diet? The discovery of vitamins and of the fact that certain diseases can be caused by a poor diet has stimulated an interest in food that was unknown a generation ago. This interest is beginning to be used by advertisers and will be used more intelligently and to a greater extent as the public appreciation of food and health advances.

What advantage we honey producers can take of this interest in food depends on our knowledge of honey. My interest in food dates back to the time when I began to feed my own children, and my knowledge of food and my questions as to the value of honey as a food for my children may serve as a guide to what we want to learn about honey.

I have learned that the best sources of vitamins are raw green leaves of plants and raw fruit and sunshine. A good second line of food defense is dairy produce and eggs. These same foods, particularly the first, are the best source of mineral salts. Energy foods are dried fruits, nuts, sugar (honey in our house) and fats, while the grains supply both energy and flesh-forming food. Meat is a flesh producer, but we do not find it necessary, since the proteins in grains—wheat and peas or wheat and soybeans are what we use—are promoting normal growth in our children, and we are keeping energetic and fit on the same foods they use.

It is also becoming general knowledge that the blood must be alkaline, and this means that the food must be more alkaline than acid forming. To keep our diet alkaline is our chief trouble, and doubtless will be to other food students that have not been able to study foods at a university.

It seems simple enough to me, provided that honey is not acid forming; but if honey is acid forming, then it seems to me, if the diet is to be alkaline, honey must be left out. Uneducated parents who want to choose food intelligently will be in great majority for some generations.

If the honey people can solve this problem, they will solve that of many parents and may solve that of the honey market at the same time.

The root of the farm problem is also there. First find out what people should eat, then tell them why they should eat it, and we will be kept busy growing it for them. I subscribed to the leading English and American popular food magazines and have some books on food, but cannot find out a thing about honey. I have used a good deal of it, but am slowly substituting dried fruit for honey on our table.

Here is a summary of my food facts:

Food must be slightly alkaline—that is, there must be more alkaline than acid-forming foods.

The acid formers are: Wheat and peas, or bread from these grains; other grains and cereals; meats; eggs; sugars; legumes.

The alkaline formers are: Green vegetables; fruits; milk; butter; dried fruits; root vegetables.

Habit causes us to use mostly acid formers, but it is easy to keep about 50-50 if dried fruits are substituted for sugar or if honey can be added to the alkaline list.

I would suggest that one of the first problems to be solved by honey research men is whether honey is acid forming or alkaline forming. The fact that the sugar in honey is similar to fruit sugar is a hopeful one, but the only satisfactory answer will be that given by biological analysis.

We must remember always that the facts that will help us are those that interest the user of our product. Our research should therefore be directed to solve his problems as much as our own.

Give those interested in food a satisfactory reason for supplying their energy needs with honey instead of fruits alone and the flavor of honey will make them convert to its use. In turn they will become propaganda centers for the new diet, and for honey in particular.

The "Science of Eating" (McCann) leaves the impression that mineral salts are the greatest necessity for making food alkaline, even whole grain being alkaline forming. McCallum says that in general the seeds (grains are seeds) are acid forming.

Australia.

State Flowers That Are Honey Plants

By Natt Noyes Dodge

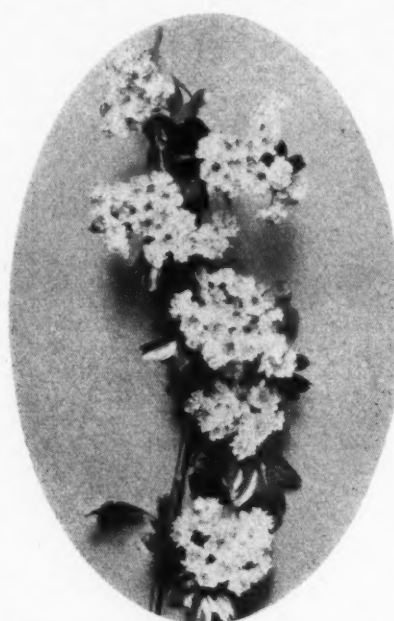
BY the very nature of their profession, beekeepers are more keenly interested, no doubt, in the wild flowers of the woods and fields than are any other class of persons, save botanists, nature students, and commercial nurserymen. However, the very importance of these flowers as producers of nectar may dull the beekeeper's appreciation of the beauty of the blooms themselves, causing him to catalogue the blossoms according to their nectar-yielding propensities rather than upon their loveliness and ability to bring pleasure to mankind. Nature lovers and out-of-door enthusiasts, whose regard for the blossoms is not strangled by the commercial viewpoint of the honey producer, have done much to attract the attention of the public to the wealth of natural beauty literally spread at our feet, and as a result of such efforts the various states have given heed to their floral resources, and the legislatures or other official bodies of each of the forty-eight states, except Pennsylvania, have adopted and officially approved a state flower, emblematic of the native beauty, and perhaps the citizens' characteristics, of the commonwealth.

If not a coincidence, it is at least of no little interest to the beekeepers of the United States that a large



The wild rose; America's choice

number of the state flowers are producers of nectar or pollen, or both, some to the extent which places them in the class of major honey plants. Foremost among these is the orange blossom, officially selected as the state flower of Florida, which is a valuable source of nectar not only in the state of its adoption, but throughout the South, particularly in California, where commercial orange orchards of enormous size furnish pasturage for thousands of colonies of bees. Orange blossom honey is considered as having one of the most delightful of flavors, which makes it the aristocrat of all the nectars.



The curly blossom clusters of the hawthorn

The apple blossom, state flower of both Arkansas and Michigan, is a springtime favorite throughout the United States, and were it not for its appearance at a time when weather conditions are normally unsettled and colony strength is low, it would undoubtedly be a much more important source of honey. However, it is unquestionably valuable as a nectar source for the stimulation of brood rearing in the spring, and in favorable seasons the bees store appreciable quantities of the clear, light, and delicious honey having a flavor resembling the odor of roses. The peach blossom, floral representative of Delaware, is also the source of springtime nectar, comparable in value to the flower of the apple, although its restricted area of production limits its usefulness.

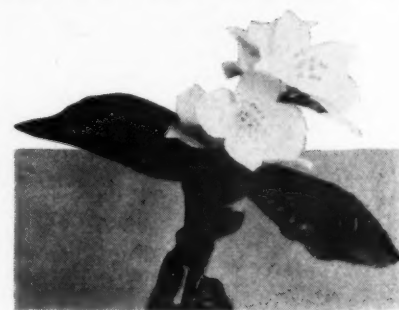
Rather closely related to the apple tree, the hawthorn, state flower of Missouri, is similar to its relative as a nectar yielder, and where these small trees grow in abundance their white or pink-tinged blossoms furnish considerable quantities of both pollen and nectar during early springtime. The quantity and quality of the honey is very similar to that from the fruit trees and is a valued addition to the spring supply available to the bees.

East of the Mississippi River and south of New England the tulip tree, Indiana's selection, offers an important ally to the honey-producing flora during May and June. Strong colonies sometimes gather as much as one hundred pounds of surplus from this source, and weaker ones find it

of great value for brood rearing. The magnolia, officially representing Louisiana and Mississippi, is common in the southern United States, where it furnishes considerable nectar during spring and early summer. The honey is customarily dark and of a strong flavor.

East, west, north, and south the goldenrod is one of the most common and best loved of roadside flowers. Nebraska, Kentucky, and Alabama have selected it to represent them in the all-American flower garden, where it not only shines forth in golden autumn splendor, but also attracts a swarm of insects, among which honeybees are numerous. In many states goldenrod yields appreciable amounts of nectar and is of importance as a producer of surplus. The nectar during the first stages of ripening within the hive gives off a sour smell, which disappears after a few days. The honey is very heavy and of a golden color. The flavor is rather pronounced and is greatly enjoyed by many persons, who prefer it to that of white clover honey. Pollen is also produced in abundance by goldenrod, which adds to its usefulness as a beekeeping flower.

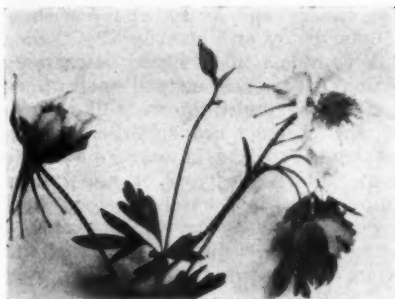
The optimistic sunflower, Kansas' contribution to the state flower list, is a common honey plant in many localities, and, although of no pronounced importance as a maker of surplus, it is nevertheless of no little



The apple blossom, state flower of Arkansas and Michigan, is a spring time favorite.

assistance in filling the cells of the super combs. One California beekeeper reports an entire carload of sunflower honey from his apiaries during one season, but states that this was an unusual year and not to be considered as one of average production. Many states list the sunflower among their valued honey plants, so that the choice of Kansas as a hardy, open-faced, thrifty dweller of the grassy plains ever looking toward the bright side of life is fulfilled from the practical standpoint of actual production.

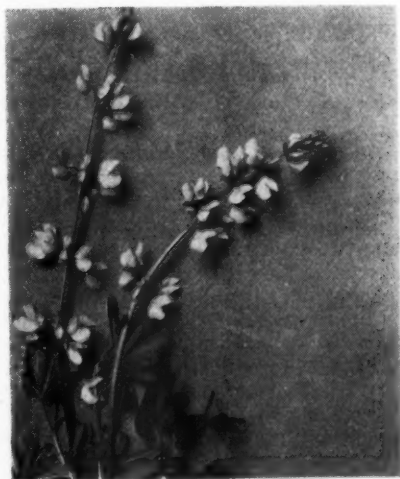
Of the lesser honey plants among the state flowers, none has been the



Colorado's lovely mountain columbine

subject of more debate than the domestic red clover, official floral emblem of Vermont. Although the corolla tubes of the red clover under normal conditions are too deep to permit the honeybees to reach the nectar, there are numerous irregularities of the weather which either stunt the blossoms or stimulate the nectar flow so that honeybees are able to take a heavy toll from this legume. It is safe to state that thousands of pounds of red clover honey have been harvested and that the pollen from this blossom, where the plant is cultivated in abundance, holds an important place in the nourishment of honeybee larvae.

Although the Sahuaro cactus, Ari-



The lupines, of which Texas Bluebonnet is outstanding, are more or less of value to the bees.

zona's unique and picturesque candlelabrum of the desert, produces a blossom of chaste beauty, its utility as a honey producer is not of sufficient import to merit mention. Other cacti, however, especially the prickly pear group, number many species of value to the beekeeper as producers of both pollen and nectar.

The rose family lists among its close relatives such as the apple, raspberry, and hawthorn, flowers of considerable importance to the beekeeper, but the roses themselves cannot be classed as honey plants, although reports of nectar yields from these flowers are not uncommon.

Perhaps the Cherokee rose, Georgia's chosen blossom, is the most consistent nectar producer of the entire group, while the wild rose of Iowa and the wild prairie rose of North Dakota may be safely classified as faithful sources of pollen. The cultivated rose, chosen by the school children of New York in 1891, cannot by any stretch of the imagination be construed as a honey plant, nor may the American Beauty rose, officially selected by the District of Columbia, be considered as of interest to the honeybee.

New Mexico's giant yucca secretes nectar sparingly, but in the arid sections of that state as well as in Arizona and California, where it grows in some localities in such abundance as to form low "forests," this vegetable pincushion is of appreciable value to the beekeeper, and although it seldom yields sufficient surplus to place it in the list of major honey plants, it holds a well-earned position among the minor nectar yielders. The low-growing, holly-like Oregon grape, favorite blossom of the Webfooters, is the antithesis of the yucca in many respects, but as a honey source it assumes a comparable position, for as a minor honey plant it is of utility during the early spring months, when nectar is often sorely needed in the important program of early brood rearing.

STANDING alone among the state flowers because of its parasitic characteristics, the mistletoe of Oklahoma is, nevertheless, a pollen and nectar producer of worth during the months of February and March. Small surpluses have been reported from this plant, although heavy yields are the exception rather than the rule. The dogwood of Virginia, black-eyed Susan of Maryland, and trailing arbutus of Massachusetts all produce nectar to some extent, and where they are found blooming prolifically are of appreciable assistance in building up the poundage of honey stored or in increasing the available supply of nectar for brood rearing, according to the season of their appearance. The arbutus, a member of the heath family, is familiar to everyone as the Mayflower of the Pilgrims and is of no little significance in the tradition and folklore of New England in the Puritan days.

Noteworthy because of their reputed production of poisonous honey, the rhododendron of West Virginia, the mountain laurel of Connecticut, and the jessamine of South Carolina stand in a class by themselves among honey plants. There is considerable argument among beekeeping authorities as to the veracity of stories regarding the storing by bees of poisonous honey from these sources, and, although it is quite certain that there have been rare cases of acute



The dogwood, of Virginia, is a showy blossom, the true flowers, however, being grouped at the small center, surrounded by large, creamy-white bracts.

illness resulting from the consumption of honey gathered from these plants, it is generally conceded that in the case of the two heaths, rhododendron and mountain laurel, the blossoms are not visited by bees when there are any other nectar sources available. The rhododendron of Washington, so highly prized as a landscaping shrub, is not the same species as West Virginia's choice, its contribution to the beekeeping profession being so slight as to be unrecorded. Both the eastern rhododendron and the mountain laurel are of interest to nature lovers because of their peculiar method of protecting their nectar lure from ants and other vis-



The California poppy is a reliable source of quantities of pollen

itors which would be worthless as agents of pollination. A heavy band of sticky substance about the stem beneath the blossom discourages the progress of climbing insects and reserves the flowers for the more welcome guests coming by the air route. The mountain laurel further guarantees the conveyance of its pollen by holding its stamens in position for violent release when a visiting insect "lands" and springs the "trap," thus dusting the sweet-seeker with an abundance of the vital pollen.

The white pine of Maine, although not possibly a nectar producer in the true sense, is sometimes the source

of scale insect honeydew upon which the bees eagerly feed. In southern states there are reports of "flows" of water-white honeydew from the pines, and in Germany the dark honeydew gathered from pines finds a ready market. The white pine is a prolific producer of pollen, but whether this is utilized by the bees is not recorded. A pollen plant of worth is the golden poppy of California, which covers the springtime hills with "an altar cloth of gold" so brilliant that it is said to have been used by mariners thirty miles from the coast as a day beacon. The orange pollen is produced in large quantities in the spring, and, since in many districts the plants continue blooming during the summer and fall, appreciable quantities are available to the bees for several months. Another pollen plant of value to bees within its range is the beautiful blue-bonnet of Texas. This lupine is restricted to the area lying within the far-flung boundaries of its foster state, but its relatives are found throughout the plains region and west to the Pacific Coast. Some are reported as valuable honey plants, while others are not nectar producers. The nectar-yielding proclivities of the true bluebonnet are debated by authorities.

In addition to the rose, there are thirteen state flowers which must base their claim for fame on qualities other than an ability to yield nectar and pollen for the use of honeybees. Colorado's blue-and-white columbine, sharing the virtues of the dove of peace and the eagle of war, holds its symbolic laurels by the sheer force of beauty, while the syringa of Idaho has the added attractions of delicate perfume and a foliage and growth habit which makes it especially desirable as a landscaping shrub. The violet, loved for its delicate modesty wherever it grows, has been officially named by Illinois, Rhode Island, Wisconsin, and New Jersey as worthy of representing these states wherever floral popularity contests are held. The moccasin flower of Minnesota, beautiful, retiring orchid of the deep woods, holds its nectar as a reward for the bee which carries its pollen, and provides a "straight and narrow path" which the insect must follow, and, after quaffing deep of the nectar, must brush against the stigma of the blossom, leaving any pollen which it may have secured from another flower, and then, before reaching the outside world, it is subjected to the inconvenience of squeezing past a pollen-covered anther, from which it receives a burden to be delivered to the next orchid which it visits.

The bitterroot of Montana and the sagebrush of Nevada have found their way into the hearts of the

hardy, sun-tanned dwellers of the West, the former furnishing its edible roots to the Indians and the early white settlers, the latter a trustworthy prophet of future crops, for when irrigation waters are brought to the land, "where the sagebrush grows, crops will grow," alfalfa and sweet clover, the two great honey plants of the West, occupying the soil from which the sagebrush has been torn. Familiar to everyone is the lovely lavender lilac of New Hampshire, while the field daisy of North Carolina is met with mixed emotions; hatred by the farmers whose hayfields it so brazenly usurps, and tender memories by the city dweller whose visit to the country was brightened by the cheerful faces of the "he-loves-me, he-loves-me-not" flowers. Ohio's scarlet carnation is notable for its perfume as well as its beauty, while the downy pasque flower or gosling plant, South Dakota's Easter blossom, is loved by the plains and foothill dwellers of the Middle West. Because of its resemblance to the instruments of the crucifixion, Tennessee's official blossom has been called the passion flower, while the shaded coloring and delicate tints of Utah's three-petaled tulip, or sego,

has earned for it the Spanish name of mariposa, or butterfly lily.

Wyoming—that land of grassy plains and snow-capped mountains over whose slopes the wine-like winds of the Rockies sweep like rushing torrents—what more appropriate than that the red and orange Indian paintbrush, its massed colors borrowed from western sunsets, should be selected to typify the land of the bison, the cowboy, the coyote, and the rattlesnake?

Many nations have their national flower, but not until the spring of 1929 was a vote ever taken to learn the choice of the American people, when "Nature Magazine" took a poll among its readers. Of the ninety-two candidates suggested, the wild rose took first place, the columbine second, the goldenrod third, and the violet fourth. All of these are at present the chosen flowers of various states, and none of them may be considered as important among the producers of nectar or pollen. Perhaps it would not be out of place for beekeepers to select for themselves an official flower whose nectar and pollen-producing abilities happily combined with characteristics of beauty and fragrance would make it a fitting representative, worthy emblem of all beedom.

The Great Miller Memorial Library

By L. C. Dadant

DURING my visit to the Wisconsin Beekeepers' conference, I had the opportunity of seeing the collection of beekeeping literature which has been gotten together for the Doctor C. C. Miller Memorial Library, and it is really amazing to find how much has been written on the subject of bees. It was also interesting to see what a great quantity of this literature could be gotten together within a few years.

According to Professor Wilson's records, it would appear that the German people have been the greatest enthusiasts about beekeeping, for the Miller Memorial Library contains approximately seven hundred serial volumes of bee journals and eight hundred books in the German language. France, England and the United States, although showing equally great interest, do not have nearly as much literature as the German-speaking people.

At least six great collections of beekeeping literature are known in Europe, and practically everything that has been printed in Europe is to be found in one of these five great libraries or in individual libraries of that country.

According to Professor Wilson, complete files of all the American beekeeping literature have not been

saved and of some odd beekeeping journals there does not seem to be a single number in existence.

It is only during the past ten or fifteen years that any systematic effort has been made to get together beekeeping literature in America. Evidently the first person to undertake the collecting of bee literature on any extensive scale in America was Professor Francis Jager, whose library is now at the University of Minnesota. This collection is a very fine one and he says that Professor Jager used discriminating taste in the selection of rare items for his collection.

We are all acquainted with the work that has been done in collecting library material for the University of Wisconsin and Cornell University, and I was interested to learn that collections are also being gotten together at the Texas Bee Culture Laboratory, the United States Bee Culture Laboratory, the University of Minnesota, University of California, University of Illinois, and Ohio State University, and a fairly good collection of American beekeeping literature is to be found in the office of the American Bee Journal.

According to statistics which Professor Wilson presented at the conference, the Miller collection now

contains over 3,000 books and pamphlets; 3,144 complete volumes of bee journals and 363 incomplete volumes. He estimates that about 5,000 volumes of bee journals have been printed, and probably 4,500 to 5,000 books and pamphlets.

The Colonel Walker collection recently secured by Professor Wilson from England is one of the finest collections and is extremely interesting because it is made up entirely of rare and odd books and papers on the subject of beekeeping, all of which are bound. Some of the rare items have the finest of leather backing, and Colonel Walker has made the collection more interesting and valuable by having had bound in with many of the volumes his personal notes, written in a very fine handwriting that appears almost to have been printed. It would hardly be possible for anyone to have taken greater care in the preparation of library material, and the beekeepers of America should be very proud of the fact that this collection is available to them.

That such collections of beekeeping literature are desirable can hardly be doubted, because it will give to our research workers something that has not previously existed. We people of America have been content to go on with our discoveries believing that they were new, when as a matter of fact many of these things have been known in Europe for a hundred years or more.

Among other interesting facts mentioned by Professor Wilson was that the recommendations for added room for the prevention of swarming, brood rearing and surplus honey gathering were given as early as 1660, and, according to Colonel Walker's catalog, the first wooden hive with movable frames, having top, side and bottom bars, was known and recommended as early as 1681.

Professor Wilson also mentioned that recommendations for the control of American foulbrood by destroying the infected combs and honey was known as early as 1775 and that very definite recommendations along this line were made by Vitzthun in 1834. We also note that the discovery of how wax comes from bees was first published in 1744. With these facts before us and the knowledge that adequate library facilities are now available in the United States, our research investigators should study the literature very carefully before announcing any new discoveries.

Not only are the librarian, but also the administrative officers of the University of Wisconsin very enthusiastic about the Miller Memorial Library, and when plans are finally completed the Miller library will have a special room with adequate shelving space and reading tables. The

INTERESTING PERSONALITIES

O. A. SIPPEL



It is very probable that O. A. Sippel would be a mechanic instead of a beekeeper if it had not been for the World War. Sippel is a Canadian and was a mechanic with a large manufacturing company.

When the war upset everything, Canadians adopted a slogan, "If you can't go to war, go to college." Sippel was rejected for war duty and of course followed the popular trend and went to college. By the time he had finished at Guelph he had been made into a beekeeping specialist and was selected by the Montana Agricultural College to establish the vocational work in bee culture there. When the office of State Apiarist was established in the State Department of Agriculture, Sippel was selected for the job, and now he is busy eradicating disease from one of the largest of the states.

Besides bees, our friend finds his chief interest in flowers and spends his brief vacation periods in hunting or fishing in the mountains.

library at present is housed in very satisfactory temporary quarters in the new wing of the Agricultural Library and is available for all who wish to use it. The rare books and journals cannot be taken from the library, but the library facilities are open to all who wish to use them, and some books and journals have already been loaned.

September "Honey Week" a Success in Utah

To bring the attention of the people of Utah to the fine quality of honey raised in the state and surrounding commonwealths, the Mountain States Honey Producers' Association sponsored Honey Week in September. During this week, Utah honey was emphasized in every part of the state by merchants, manufacturers, chambers of commerce and other organizations. Effective displays and demonstration programs were carried out by the bee men.

A. W. Anderson, who had charge of this work, reports that "Western honey has been found to be in a class by itself because of its fine flavor. Nowhere else in America can the pure white honey of Utah and Idaho be produced. It is significant that the most part of the honey produced here is consumed outside the area, and we are trying to educate the people of the state to a greater use of their own honey."

Approximately 12,000,000 pounds of honey produced in the intermountain states are exported every year. A total of 265 carloads of honey was produced and distributed by western beekeepers last year, according to Mr. Anderson.

It is hoped that Honey Week will have some effect in increasing the consumption of honey. At any rate, it went over with big success in Utah and it is hoped that other states will join the movement.

Glen Perrins, Utah.

How the County Agent Can Help His Beekeepers

I read the article, "The Permanent Eradication of American Foulbrood," by Dr. Mart R. Steffen, in your July number. Here in Louisiana we are burning all infected colonies, and we have reached the point where very few have to be burned, as the disease has been so nearly eradicated that only a few cases are found in a year's work by the inspectors.

I am a county agent and as a sideline I am a beekeeper. As county agent, I work with every beekeeper in my territory. Every suspicious looking brood comb has been quickly brought to my attention, and if I have the slightest doubt I call in the state inspector. We have never had a single case in my territory, but I located one yard in the adjoining county, which I turned over to the state department and they cleaned it up by burning—with the full cooperation of the owner—and the yard has been clean for several years past.

George W. Bohne.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

MAPLE SYRUP FOR WINTER FEED

I have some maple syrup that is dark in color, but not burnt. Would it be suitable to feed bees for wintering? Was thinking of heating it up and mixing some honey with it.

OHIO.

Answer—I have never tried maple syrup for feeding bees, so I cannot advise you. But in my opinion it would not be very satisfactory, and I advise you to try it on only one or two colonies. I would prefer to use it for spring feeding, as at that time it cannot hurt the bees, since they fly out often. It is quite probable that maple syrup contains enough additional gums and foreign substances to embarrass the stomachs of the bees.

WINTERING WITH FOUNDATION ABOVE

I will put my bees in cases packed with leaves. I am thinking of putting a hive on top with full foundation. Will the bees injure the foundation during the winter? My idea is for the bees to have plenty of room to build up in the spring before I take them out of winter quarters. The most of the brood chambers are full of honey. My hives are all ten-frame hives, all deep hives except one. I have one ten-frame hive that has 9¼-inch frames.

Would it be all right to put those empty hives on top of the brood chambers this fall?

NEBRASKA.

Answer—It would be a mistake to put upper stories on your hives for winter, as the extra space simply makes it more difficult for them to keep warm. If they have the deeper frames, they have plenty of room to carry them to the spring examination, which you will need to make to ascertain whether they have enough to breed, in spring, say about the last of March.

Putting empty stories with only comb foundation on top of the hives would do them no good in any way during the winter months.

REDUCING HIVE FOR WINTER

I want to ask something about wintering my colony of bees. Some time during the summer I put a second hive body on top, with combs, because they clustered around outside so much on warm days. Fed syrup during September, it being hot and dry, and didn't look like much natural stores coming in. Today I opened the hive expecting to take off the upper story preparatory to packing for winter, as many of the writers advise wintering in one body only, making less space to keep warm. But I found the queen and considerable sealed brood above, with much honey, while the lower story is half or more empty and only a few dozen cells of sealed brood.

1. Now how shall I winter—leave both stories, or would I be safe in taking away the lower one?

2. The nest arrangement is not exactly circular—more like a half circle, the straight side down along bottom bar of frame. If I remove lower body, will that bring the nest too low down and too close to the open entrance for winter?

3. Do the bees naturally fill an upper story (if they have one) before the lower? I am a novice, but I think the summer as a whole seemed not the most favorable for honey production; at least my own bees so many days did not fly very freely or busily. Any information you give me to improve or correct my methods will be thankfully received.

INDIANA.

Answer—1. Under the circumstances, it will be best to take away the lower story. If there should be any brood in it, remove it and place it in the upper story in exchange for one of the frames that have no

brood. It is quite possible to winter in two stories, although wintering in one story makes, as you say, less space to keep warm.

2. You need not be afraid that putting the upper story down should put the cluster too low for winter, because the brood is going to hatch and the bees will have their cluster in natural shape afterwards.

3. Yes, the bees usually put the honey above their cluster, for two reasons. First, they can more easily defend it against robbers if the cluster is between the stores and the outside. Secondly, they can reach their stores better when they are above the cluster, because the upper part of the hive is always warmer than either the sides or the bottom. That is why we do not like to winter in two stories if one story can contain enough food. This is another reason why we like the deeper brood chambers, such as we use, better than the shallow ones in two stories, one of them being called the "food chamber." Better have enough in a single story.

TOO MUCH HONEY FOR WINTER?

I have fifty colonies of bees. I have them in ten-frame hive bodies and two bodies to each colony. I failed to get any white clover honey and now I find they have the hives full of honey made from bittersweet or some other kind of flowers. I left my bees in this condition last fall, and in the spring I found they had used very little of the honey; very little empty comb for the queen to lay in.

1. Do you think it would be best to extract this honey now, or wait until spring?

2. Do you know where I could sell this honey?

3. Do you think they will have honey enough in the bottom hive to take them through the winter?

I have thought of extracting about half of the combs in the upper hive body and placing the empty combs back in the upper hive body.

I started in the winter last year with forty-seven colonies, and forty-five came through in good condition in the spring, so you see I have no winter trouble.

TENNESSEE.

Answer—1. If the honey is bitter or unfit to eat, you may be able to extract it and preserve it for feeding the bees in times of scarcity. If I found myself in the condition you mention, I should try to get the bees to breed heavily in spring, with this honey, by uncapping a little of it, in the brood chamber, every few days. This would induce them to breed more fully.

2. I do not know of any purchasers for bitterweed honey. Keep this for the use of the bees, as I have said above.

3. I am unable to advise you about their having enough in the lower story. Much depends upon how much they have consumed when winter begins. From your own statement, this is evidently good honey for them to winter on.

FAILING QUEEN IN DISEASED COLONY

I had a colony of bees in which disease, which I thought was sacbrood, had made considerable headway, and in which the bees were very persistent in their efforts to rear a queen long after the swarming season. I would find two or more queen cells every few days. I sent a sample of the diseased brood to the Department of Agriculture at Washington and it was diagnosed American foulbrood. The shaking treatment was given—a single shaking—and the bees placed in a hive with frames containing

quarter-inch foundation starters. They began at once to make new comb and now have made considerable progress in six or seven frames, and all comb built is worker-comb and is filled with brood. I have found no queen cells as yet.

1. Could the presence of American foulbrood have been responsible for the persistence of the bees to raise another queen?

2. Or were the bees attempting to supersede a failing queen who, since with less comb space for laying, is meeting the demands of the colony?

3. If it appears that the queen is failing, is it too late now to requeen? Could the colony be requeened to equal advantage in the spring?

TEXAS.

Answer—1 and 2. It is possible that the presence of foulbrood caused the bees to want to change their queen, although I have never seen that. If you are sure that it is the same queen, then it is evident that they were charging her with the difficulties and that the queen was also more or less disturbed by the abnormal conditions. This is impossible for me to decide.

3. I am not very well acquainted with the October conditions of Dallas, but if they are still rearing brood, it would seem that they could accept a new queen. Then it would be better not to wait till spring. But wait till you have the new queen in hand before killing the old one.

QUESTIONS ABOUT THE BIG HIVE

I have used twenty-six Modified Dadant hives this summer, and liked them well; am purchasing one hundred and twenty more for next year. Now, from time to time, puzzling questions have arisen, which I have been saving up to ask your opinion on.

1. I am trying to design a permanently packed ideal winter case for two colonies. Should I leave room enough in it for one, two, or no extracting supers? That is, as a rule, how much room will the average colony in a Modified Dadant hive need by the time one should unpack with greatest safety?

2. The college extension man tells me that there is such a thing as overpacking; that with too much insulation the bees are too warm, become too active, wear themselves out, and consume all their stores before spring. He is very positive of this, and says that it seemed to be proven on quite a large scale last winter in the college yard. I have always been under the impression that it was impossible to give a colony too much protection, and have planned to give them four, eight or twelve inches of planer shavings, in a well-built case.

3. What is your advice concerning the use of Celotex or other insulating wallboard in permanent cases? How great a thickness of this material would be equal to eight inches of planer shavings?

4. My hives are all going into winter quarters with sixty or seventy pounds of stores each. I plan to feed stimulative in the spring. Now I wonder if I'll have to remove and extract frames from the brood nest to make breeding room, or will the bees, if plenty of super room is available, move this capped honey up to clear a way for the queen? I'm very eager to know all about this, as all my plans hinge on the answer.

5. Some of my 6¼-inch extracting frames have quite a bit of pollen. Will the bees remove this when the supers are put on? When is the best time to give them these frames to have them cleaned—first in the spring? Is there any other better way to have the pollen removed?

6. What is your opinion of stimulative feeding in the spring, for other than pack-ages? Will more brood be reared than if plenty of sealed stores are in the hive? Would it pay to feed stimulative when one is in the business quite extensively? How soon in spring should I start? My winter cases are so designed that I can use the Boardman feeders in the ¾-inch tunnel or use a pail feeder over the cluster.

7. In cleaning combs after extracting, is it best to return them to the colonies which filled them, or to keep one or two colonies just for comb cleaning and stack the supers on them? How many supers could be stacked on one colony and how long does it usually take to clean them? If the cleaning colony should develop American foulbrood, would all the combs cleaned by it be likely to spread the disease?

I assure you that I will be deeply appreciative of answers to these questions.

MICHIAN.

Answer—1. We do not figure on placing more than enough room in the upper case for warmth-preserving material, or about the depth of one super. It is immaterial whether the packing reaches high enough to shelter the supers in summer.

2. They may have found that there might be too much packing, but we have not. We have never packed, however, to a deeper extent than four or five inches. But a colony which is warm enough to come out at the entrance at the least disturbance, in the coldest weather, is sure to winter well, in our experience.

3. I have never tried "Celotex." About four inches of sawdust, or chaff, or leaves, the latter being the material which I always used, is all I think is needed. Our people now use ordinary straw, which costs them less, but I do not think it as good as forest leaves, especially maple leaves.

4. If you feed very lightly in spring, the bees will make enough room by breeding to give the queen all the cells she needs. If not, an empty comb in the center, at the beginning of the heavy laying, will be all that you need provide. Feed only a few spoonfuls, often, if the colonies are rich.

5. I have never had any trouble with pollen. If you put it within their reach early, they will surely use it.

6. Stimulative feeding should begin when the bees fly easily. Give very little. We used to just spill a little over the top of the combs. It is a very good way, but cannot be followed on a large scale.

7. We return supers after extracting just as we find the need of it. We sometimes give a colony that is short of honey four or five supers to clean, but one must be very careful in case there should be a shortage of honey and some tendency to rob. In that case, better give each colony what it can take care of. Always put back the empty supers in the evening, before sunset. Then if any robbing begins it soon stops. In case of foulbrood, you are in a bad fix. Better make sure of no foulbrood before beginning your extracting. That is a very different situation and demands stern measures.

DETAILS OF WINTERING

I have not had much experience with bees and would like some information on their winter care.

Would you advise turning the reversible bottom board around so that the smaller entrance is used?

I have taken some extracting frames off that are well capped over. Is there much danger of the honey sugaring in the combs? I intend to give this honey to package bees next spring. Would it harm them if it did sugar?

MINNESOTA.

Answer—In your part of the country, I would prefer wintering the bees in a dry cellar, where the temperature might be kept around 45 degrees. If you do not have such a cellar, aim to shelter your hives against the cold winds. It will be good to wrap them up a little, leaving the entrance open. It is well to reduce that entrance to a small size.

As for honey in the comb, there is not much danger of its granulating (what you call sugaring). There are only a few kinds of honey that granulate in the combs. Even granulated honey is acceptable to the bees, if it is not granulated too hard. In the spring, they often secure water to help dissolve granulated honey. But most of the granulated honey is used by them without water.

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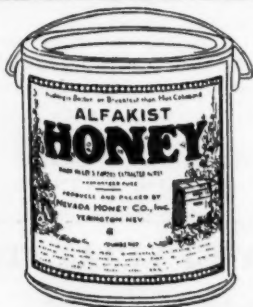
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A LATE CASE OF DISEASE

I would like your advice on what to do with one colony of foulbrood. Would you kill this one swarm, or is there any danger of it spreading to the other hives so late in the season? I have the entrance closed over half way and there are quite a few bees left.

I had three honey supers on this hive. One of twenty-eight sections they filled early in the season, but the other two supers are worked at very little. Would you advise destroying this with the honey foundation and sections, or could I use this on another swarm in spring? WISCONSIN.

Answer—In some states, where there is very little foulbrood, it is customary to destroy the hives found with disease, burning the hives, combs, bees and all. But in localities where the disease is already established they save the bees by transferring them in spring into new hives, melting up the combs and rendering the wax. If this is done properly, there is very little danger of spreading the disease. But you must not use any combs or supers that have been occupied by those bees. The combs should be melted up, the honey should be heated to the boiling point of water for a half hour, and the bees should be given a new hive. The old hive should be singed before using it again.

If there is any danger of that colony dying during the winter, it may be better to destroy it. But if it has a good queen and is not weak, it may be saved till spring. You must make sure that other bees will not rob it, for they would get the disease with the honey they would secure.

CELLAR WINTERING—HONEY HOUSE CONSTRUCTION

1. I have fifty swarms in fine shape, and a cellar under the house (my home). Would it be satisfactory for the welfare of the bees to carry them down there and stack for the winter? I am not living in my residence this winter, as I am here teaching and my bees are at Lawrence, Kansas. Would it be O. K. to put the bees in one room of my house?

2. In either case, if the bees are placed in the cellar or a room of the house, would the bees fly to the light of the windows and fail to get back? I am fairly well posted on bee behavior, but have had no experience in wintering in a cellar at all.

3. I am going to build a bee or honey house next summer and I would like to know where I can get some ideas on construction so I can take care of the honey from one hundred to three hundred colonies of bees. I want my quarters right up to the minute in appearance as well as convenient in handling my product. Where can I turn to for information?

4. By the way, I am selling my extracted honey this season at \$3.25 per dozen pints and it is retailing at 35 cents. I have no trouble at all selling it. I cut a strip of white clover honey and stick down into the bottle and pour the extracted honey over it. I cork with milk bottle caps and wash off the surplus honey and polish every bottle. The dealers are crazy about its appearance, as the strip of honey is an advertisement. It really does look fine. It nets me a little less than 15 cents per pound. The beauty of it is, the cost of the bottle is passed on to the next man, and finally to some milk man, possibly. I sold honey successfully in an A. and P. store where their supply on the shelf was going to sugar. Is my price too low? I see honey advertised at 7 1/4 to 12 cents in bulk. I believe the honey business is a case of survival of the fittest. I want to be fit. KANSAS.

Answer—1. To secure good wintering in the cellar, it is necessary that the temperature of the cellar should not go below 42 degrees or above 50 degrees, as the bees become restless above or below those points. At about 45 degrees they remain quiet, unless the food is unhealthy, in which case it is a mistake to put them in the cellar at all. As to a room of the house, it is not advisable to use one, for the bees would be restless.

2. It is advisable to darken the windows

of the cellar, so that the bees may not see any light, as they would not be able to return to the hives. We leave the entrances open so that bees that are restless from some cause may go out and not worry the others. We pile the hives four or five high, with some sort of a rack at the bottom of the piles so they may not be too close to the floor.

3. Information has been given from time to time on building a bee house, but the requirements are so varied that it would take a special architect in each case. See our August American Bee Journal, 1928, page 406; page 79 of February, 1927; page 618, December, 1927.

4. Your strip of comb honey in a jar of liquid honey is all right. That method had been discredited in the old days because the adulterers used such a strip in a jar of glucose, but they abandoned the practice long ago. You need to heat your honey before putting up much of it in that way, as it will be almost certain to granulate (or go to sugar, as you say) during the winter. Then you have trouble with the grocer.

DEAD BROOD—CLOVER YIELD

1. A man gave me a rather small swarm late in June. About a month or six weeks after I hived them, I noticed the bees dragging a few of the brood from the hive. This went on for about two or three weeks. I examined them and all I could see wrong was a few uncapped cells. At this time we had very hot, dry weather. Well, I moved this hive to a distant place and for more than a month have seen no dead brood. They are working well now and have lots of nice-looking brood, though there are a few empty cells mixed in among the brood. I am trying to watch out for foulbrood. Do you think this hive has it?

2. About how much honey will an acre of sweet clover produce? MISSOURI.

Answer—1. The dead brood you refer to may have been some brood that was not sufficiently fed during the extreme drouth. There is certainly no disease there, at least no foulbrood.

2. It is impossible to tell how much an acre of sweet clover will produce, as we have no way of ascertaining it. An acre will help considerably in the crop for a few colonies, but you would need ten acres or so in order to figure on it for a crop of honey for a number of colonies.

GETTING HONEY FROM THE OLD HIVES

I am writing you for information in regard to how I can get honey from old combs, out of old box-hives, where I have driven the bees into new hives. It's in such shape that I can't extract it. Also, how can I get candied honey out of sections separated from the wax?

I have ten or twelve colonies of bees. My cellar is so arranged that I can't darken it all. Would it be all right to enclose them in a bin or large box? I could with an electric fan blow air in once in a while, if necessary. I intend setting them near the center wall, with the furnace on the other side in a separate room. My cellar is always dry. IOWA.

Answer—The only way we know of to get honey out of old, crooked combs, or to get granulated honey out of them, is to melt it slowly. We prefer to do that over a vessel filled with water so that the honey will not burn. It is best to keep it at about 145 degrees, which will melt the wax, but will not damage the honey.

Regarding your cellar, you can darken a portion of it as you suggest, or simply separate it from the rest of the cellar with a blanket. The important thing is to keep the temperature about right—about 45 degrees. The bees will be restless if either too warm or too cold. Your furnace will be likely to make them warmer than they ought to be. Buy a thermometer and keep them at the right point.

Extracting Tools Help Spread Disease

On page 378 there appears an article by R. B. McCain, "The Only Good Diseased Bees Are Dead Bees." Right you are, but I do not think you should tell beekeepers to use their extractor, honey knife, etc., for foul-brood combs. All combs from diseased hives are diseased combs as far as we can see by looking at them. The extractor throws a fine spray of honey when it is running, and people standing near get it on their clothes.

On page 394 the editor also advises using the extractor for the same purpose. I think this is very risky. How many people will get the extractor thoroughly cleaned before they use it again?

The only ones who have opposed our clean-up here are those who do not clean up their own bees. Careful beekeepers are not worrying about inspection. If we are to eradicate disease, we must have experienced men and they must clean up as they go. This means laws severe enough to take care of careless ones.

I believe anyone extracting and selling honey from diseased hives is doing harm to beekeeping. California has made wonderful progress in eradicating disease under our new laws.

George W. Moore,
Shasta, California.

(Extracting will not "throw honey in a spray out of the extractor on people's clothes" unless the honey is cold.—Editor.)

Do Swallows Eat Bees?

In the "Gazette Apicole" of August, 1930, Mr. E. Aptel writes an article in which he states that he often examined the crop of swallows while the latter were practicing the catching of bees. He found invariably that the bees caught were always drones. It appears that the swallow is able to recognize the drone from the worker and that she knows the danger of eating worker bees on account of their sting. Many of us have noticed also an ordinary chicken picking drones in front of a hive, but shaking her head at the worker bees. Evidently there is something in the smell of a honeybee which warns them of the danger of the poison sack.

A Good Bee Magazine

The August number of the "Beekeeper," published at Peterboro, Ontario, is a splendid number, for everything that it contains is worth reading. Our Canadian subscribers who do not take this magazine should send for a sample copy.

Beekeepers Take Notice

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MEETINGS AND EVENTS

Current association meetings and organization notices are published in this department each month. Secretaries and other officers of organizations who wish publicity here should make sure that notices are sent in before the fifteenth of the month preceding publication. Frequently notices are received too late for use and consequently do not appear at all.

Beekeepers' Day at New Hampshire Farmers' and Home Makers' Week

Beekeepers' Day at the Farmers' and Home Makers' Week was very successful with fifty-five beekeepers in attendance at the morning program and a larger number at the demonstrations in the afternoon. C. L. Farrar, instructor in entomology at the Massachusetts Agricultural College, and C. H. Pease, of Marlboro, New Hampshire, gave helpful talks on fall management and hints to beginners.

Mr. E. C. Wardwell, of East Kingston, New Hampshire, showed his ability to handle bees when he demonstrated transferring from a box-hive to a modern hive without he or the audience getting stung. The beekeepers were not backward in trying to see everything, as shown by the picture.

Professor J. R. Hepler, of the University, explained how to remove a colony of bees from a tree by use of a cone of wire screen as a trap to prevent bees from getting back into the tree, and E. J. Rasmussen also demonstrated the opening of a hive, the way to requeen with queen in a mailing cage.

At the business meeting, Professor J. R. Hepler, of Durham, New Hampshire, was re-elected president; C. H. Pease, Marlboro, vice-president; E. J. Rasmussen, Durham, secretary-treasurer; E. C. Wardwell, G. C. Barton and J. A. MacFarlane on the executive committee.

E. J. Rasmussen, Sec.-Treas.

Iowa Meeting at Shenandoah, November 12 and 13

The annual meeting of the Iowa Beekeepers' Association will be held at Shenandoah on November 12 and 13, 1930. This meeting is held in conjunction with the State Horticultural Society and the affiliated organizations and also in conjunction with the Mid-West Horticultural Exposition, which is to be held November 11 to 16.

It is hoped that beekeepers of adjoining states will attend the sessions of the Iowa Association. A cordial invitation is extended to anyone who is interested in the program and the exposition. The exposition is open to producers any place in the United States, and it is hoped that a large number of states will be represented at the exposition. Entries can be

consigned to the superintendent of the Honey Department and they will receive careful attention.

The premium list is available for distribution upon request to R. S. Herrick, State House, Des Moines, Iowa. F. B. Paddock, State Apiarist.

Radio Talks on Bees

Another series of beekeeping addresses by Professor Paddock over Station WOI, Ames, Iowa, is in progress. These talks are given every Friday at 1 p. m. Those still to come are as follows:

October 3—Colony Population and Stores.

October 10—Outdoor Protection.

October 17—Honey, Health and Happiness.

October 24—What We Owe the Bee.

October 31—The Spirit of the Hive.

November 7—Cellar Protection.

November 14—Facts and Fancies.

November 21—Looking Ahead for 1931.

Peoria County Meeting

The monthly meeting of the Peoria County Beekeepers' Association was held at the home of C. C. Strieder, of Brimfield, Illinois, on the afternoon of August 11. About thirty were in attendance, staying over for a basket supper in the evening. Talks were given by M. G. Dadant, of the American Bee Journal staff, and B. F. Bell describing the combined fruit and bee trip through the fruit sections of western Illinois.

Beekeepers reported erratic conditions in the honey crop, chiefly due to dry weather. Some reporters have excellent crops, whereas others have near to failure. The close hookup of beekeepers and fruit growers was shown by President Shoaff as well as by Mr. Bell, who attended the fruit and bee meeting.

A live secretary makes a live meeting, and Mrs. Johnson, secretary of the Peoria County Association, is particularly active, accounting for the satisfactory crowd represented.

New Beekeepers' Association Formed in Cincinnati

Twenty-five beekeepers of Cincinnati and environs met August 20 and formed a new organization to be known as the Beekeepers' Association

of Hamilton County. Membership will include all residing within the county, and the next meeting will be held early in September, when rules and regulations for the organization will be completed and plans made for the establishment of an inspection service to eliminate foulbrood and other diseased bees.

Only a temporary organization was established for the interim, Fred W. Muth, president and manager of the Fred W. Muth Company of Cincinnati, to act as chairman until the regular election of officers. Serving with him are E. A. Good and Pricce Hill, who was named as secretary and treasurer.

According to J. H. Boyd, county agricultural agent in Hamilton County, there are close to two hundred beekeepers in the city and county, and an effort will be made to enlist all of these in the new organization.

Marie DicKore.

Missouri Apiary Awards

One of the largest exhibits that has ever been held appeared at the state fair at Sedalia, Missouri, this year. The Home Economics Division came in for special merit. This division was started several years ago and has grown immensely until this year it was the best in the number and quality of entries of any year so far. This year, in addition to candy and cakes made with honey, home-made bread, rolls, cinnamon buns, pies, cookies, doughnuts and jelly rolls were displayed.

In the apiary department, awards were made as follows:

First—Under display of apiary products, Lee Bradford, of Liberty. Mr. Bradford also was first on display of light extracted honey. For comb honey, Mr. F. S. Butterwick, of Sedalia, came in first, with B. O. Adkison, of Mound City, with the best twenty-four sections. For amber comb honey, the best twenty-four sections was won by N. O. Stevens, of Sedalia, while Lee Bradford, of Liberty, came in again for first on the pyramid of six sections and for first on cut white comb honey and first for white extracted honey.

On amber extracted honey, W. A. Scott, of Lamonte, won first; white candied honey, William Brangarth, of Slater; amber candied, F. S. Butterwick, of Sedalia. Best quality yellow beeswax, Ollie G. Kirby, of Sedalia; best cake of white beeswax, William Sass, of Concordia.

For the finest Langstroth size frame of sealed honey, Elva J. Cannon, of Kansas City. For the most perfect empty worker-comb, M. O. Stevens, of Sedalia. For the most perfect shallow frame of sealed honey, William Brangarth, of Slater. For the most perfect half-depth

(Continued on page 504)



More Adventures of the Bee Fairies

By Aunt Laura

WITH happy hearts the bee fairy children and their guide alighted and, unchallenged, once more entered the home of the bees.

"That was the most fun I've had in a long while," exclaimed Robert.

"Dear grandma—she never thought about your being that naughty bee," laughed Mildred.

"I suppose she is wondering yet how those bees ever got in," answered Doris May.

"Look at me," bragged Robert. "I have such a dandy load I'd like to show it to some of these fellows."

"Just like a young bee exactly," answered Fleet Wing. "Do it if you wish. Then as soon as you are ready we will find a good place and deposit all of our treasures—or, if you prefer, we can pass it along to someone else."

"No, indeed," was Dickey's answer. "I want to put mine into the cell my very self."

"So do I," agreed the others.

"Very well, so you shall," Fleet Wing assured them, "but while Robert displays his achievements to the bees about here, let us rest."

So for a little time, while Robert pranced about and whispered to Imp and Friskey and some of the others of his adventures, they rested, watching with interest all the delightful doings of the bees about them.

"I do so want to hear more about the queen," said Mildred when Robert finally joined them.

"Yes, yes, so do I," exclaimed Doris May. "I want to know all about her. Please tell us."

Fleet Wing smiled. "I am truly glad you are interested in her," she said, "for, as I told you before, she is the very life, the heart of the colony. I know when you see her you will quite understand why we honor and protect her so much."

"You see," continued Fleet Wing, "the royal cradles, and I told you of her royal food. When she gnaws through the tiny cap of her cradle and pushes open its hinged door, she

comes out very slowly into our world. She is very soft and velvety—a truly beautiful royal lady."

"I bet you watch her and take good care of her," exclaimed Dickey.

"Yes, indeed we do, for if our old queen mother is dead or is feeble, we know that the life of our colony depends upon this royal lady."

Doris May exclaimed, "Tell us what she does first."

"She crawls out and looks around; then she begins to move about, first slowly, then more energetically, stretching out her beautiful wings and exercising her strong legs, growing more vigorous all the time. Soon, with an instinct given her by our Heavenly Father, she begins here, there, everywhere about the home, to hunt for rival queens or for royal cradles from which the baby queens have not yet come."

"And why," asked Dickey breathlessly, "why does she do that? Is she lonesome?"

"No, dear, she is not lonesome; but you remember it is God's law that in a colony there shall be only one queen-mother."

"Couldn't there be more than one queen?" asked Mildred. "Ever?"

"Occasionally, but not often, and then only for a short time. If the queen-mother is old and failing, or once in a great while, if several young queens come out at about the same time, they may live together peacefully a little while, but not long. You see it is against God's law," was Fleet Wing's answer.

"And bees obey God's law, just as men should, don't they?" said Aunt Laura softly.

"Yes, indeed, for it is only by obeying law that we can be happy and contented and safe," was Fleet Wing's reply.

"But please tell us more about the young queens," said Dickey politely.

"So as this young queen moves over the frames, she is constantly looking for other queens and seems to know it is her work to destroy them

and to tear down any royal cradles she may find."

"But how could she destroy the cradles?" inquired Dickey.

"Usually she bites or tears a hole in the side, and the bees who are with her do the rest. Sometimes they tear a very large hole and drag out her rival," Fleet Wing replied.

"How dreadful," cried Mildred with a shudder.

"No, dear, not dreadful at all," answered Fleet Wing. "It is our law—one queen in each colony—and that law must be obeyed. With bees, always remember it is not the individual bee that counts, but the good of the entire colony, that is to be considered."

"Supposing," remarked Robert, "supposing she meets another queen. Then what happens?"

"Ah, then a royal battle takes place and the strongest, most vigorous young queen stings her rival to death."

"I'm glad I'm not a queen," exclaimed Doris May.

"Well, if I had to be a queen, I'd want to be the biggest and strongest and able to fight the best," returned Dickey.

"And be the first one out of my cradle," suggested Mildred.

"That would be one time when it would pay to be the first one out of bed," laughed Robert.

"When all of her rivals are properly disposed of, the young queen is ready to become the mother of the colony, so when she is about a week old, probably on a bright, sunny afternoon, she flies out on her wedding journey, and you can quite imagine how anxiously we watch her go, wondering if she will return to us in safety; and with what joy we receive her back once more."

"Does she stay long?" asked one of the children.

"Sometimes only a few minutes, sometimes longer. Sometimes she goes out several times for several days; then she comes home to stay, unless, of course, we later decide she must go with us to start a new home; but I shall tell you of that some other time. When she comes home to stay, she changes in both manner and appearance."

"How?" asked Mildred.

"Before she goes on her wadding journey she is nervous and runs about, and sometimes, if the roof is off of our house, she even flies off the frames in the most reckless manner. Then, too, before mating, she hunts for her own food on the combs of honey; but afterward she moves about more slowly and with dignity, and tries to hide when our house is opened. She changes, too, in size, growing much longer and stronger; and as to her feeding, after she be-

(Continued on page 502)

Doings in the Northwest

By N. N. Dodge

Loss from Spray Decreases

Reports from the apple districts of Washington indicate that losses of bees from spray poisoning have been less severe this summer. This is perhaps due to the fact that beekeepers are keeping their yards as far as possible from the orchard districts during the months that spray applications are necessary. Bee men in the apple growing regions are especially interested in the development of methods for the control of codling moth larvae. According to the "Okano-gan Independent," an experiment in the control of codling moth is being carried on by an orchardist in the Methow district. By means of overhead sprinkling, an effort is being made to keep the temperature of the orchard below 60 degrees. Like bees, moths of the *Carpocapsa pomonella* do not work while low temperatures prevail. By keeping the temperature of the orchard below 60 degrees, the Methow apple grower hopes it is possible to keep the moths from depositing their eggs.

— o —

Boys' and Girls' Bee Club Display

Mr. Julian Joubert, well-known honey producer of Enumclaw, Washington, reports a particularly fine display of honey by members of the Wynoochee Boys' and Girls' Bee Club at the Grays Harbor County Fair, which was held at Elma, Washington, August 29 to September 2. Miss Helen Steiner is superintendent of the Bee and Honey Department of the Elma fair, and Mr. Joubert judged the exhibits. Fred Mandery, of Tenino, Washington, received a majority of the premiums. Among the prizes offered in the Boys' and Girls' Bee Club competition was a premium for the best set-up beehive. This was won by a girl—little Miss Helen Gieberson.

— o —

Forest Fires Severe

Forest fires have been severe in the forested areas of the Northwest this summer. Vast areas of timberlands have been burned over, and in some districts houses, barns, and mills have been endangered by the flames. "It is an ill wind that blows nobody good," so that Northwest beekeepers profit more than perhaps anyone else from these devastating fires. Fireweed, the famous honey plant of the Pacific Northwest, follows in the wake of the red demon and provides pastures for thousands of colonies of bees. In the Wynoochee Valley of southwestern Washington, fires have been prevalent during the late summer months, according to Roy Cox, young beekeeper of Elma. Several

apiaries were at times in serious danger of being destroyed. Bees working on the late blossoms of fireweed were hindered by the smoke from nearby fires.

— o —

To Study Fireweed in Indiana

Mr. John G. Brumley, of Newburg, Indiana, has become interested in fireweed as a honey plant and recently sent to the Northwest for some seed of this interesting plant. He intends to make plantings at his home to study the growth habits. The fireweed seed, when ripe, is borne by the wind on its tiny, cottony "parachute." During the late summer the air is filled with millions of these downy adventurers, which cling to the clothing of travelers, clog the air passages in automobile radiators, and make themselves more or less of a nuisance to human beings.

— o —

Honey Used in Deporting Bears

Mr. C. Frank Brockman, naturalist of Mount Rainier National Park, reports an unusual use for honey in the capturing of bears which had become so bold as to frighten visitors and damage automobiles in the park. The bears became accustomed to visiting garbage cans for scraps of food, so in trapping them lengths of galvanized-iron culvert pipe were used. These sufficiently resemble garbage cans to allay any suspicions which the bears might have. Gates, connected with a trigger arranged in the interior of each length of culvert pipe, were made, and each "trap" baited with bacon. Honey smeared liberally on the metal near the end of each "trap" attracted the bears, which crawled inside, after licking up the honey, to investigate the bacon odor. In endeavoring to remove the bacon from the trigger, the bear sprung the trap, thereby shutting himself into the culvert pipe. Each length of pipe was mounted on wheels, and these unique rolling prisons were towed over many miles of park highway to secluded portions of the park and the bears released. Each bear was daubed with a generous smear of white paint as he bounded from the culvert pipe. This "brand" was placed on each bear so that the animal would be recognized if he found his way back to the district from which he had been deported.

— o —

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(Continued on page 504)

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More Adventures of the Bee Fairies

(Continued from page 500)

thing so important as that. Come, children, let us deposit our precious store of peach preserves. Those empty cells right there are an excellent place. If you will watch me and do as I do, we shall soon be through."

Carefully the bee fairy children watched their guide as she entered a nearby cell, back down, feet up, then, with mouth and mandibles open, drop by drop, she deposited and spread her treasure against the cell walls, slowly turning her head from side to side and keeping the mandibles in motion, her tongue folded neatly behind the head.

It was an exciting experience to the bee fairy children, and you may be sure at the completion of their

task they stood back to proudly inspect their treasure.

"I always said Robert could eat three times as much as I can," laughed Dickey," but for once I believe I ate more."

"You all did splendidly," commended Fleet Wing. "You are to be congratulated upon adding so much to our family stores. Now we must get ready to be presented to our queen."

"Oh, dear," sighed Doris May, "I am frightened already. I never met a queen before."

"Except Mildred at the school celegins to lay, she turns to the workers for nearly all of her food, and when she is hungry, inserts her tongue into the mouth of a worker and sips until she has had all she wants."

"I wish I could feed a queen," said Mildred wistfully.

"Perhaps you can, later on. We shall see," was Fleet Wing's reply.

"And when does she begin to lay eggs?" inquired Robert with interest.

"Usually about one or two days after mating. If plenty of pollen and nectar are coming in, she immediately begins then to build up the colony. As she moves over the comb, she first puts her head down into the cell and, after inspecting it carefully, she turns about and slowly backs down, depositing drone eggs in the drone-cells and worker eggs in the worker-cells.

"And does she ever make a mistake?" asked Dickey.

"No, never, if the colony is normal. This is one of the most interesting and wonderful of all our laws. Then, as soon as the egg is laid, she moves to the next cell, and, if the bees have it nicely prepared for her, she lays an egg in it."

"Bees have to be very neat, don't they?" remarked Robert.

"Yes, indeed, very neat, and, as I told you, every cell is neatly and nicely polished and perfectly clean before she puts an egg in it."

At this moment Yellow Band appeared. "Come, come, have you forgotten your appointment to appear at the royal court?"

"No, indeed," replied Fleet Wing calmly. "We would not forget any-bration," interrupted Dickey, laughing.

"That doesn't count, does it, Aunt Laura?" said Mildred.

"No, that would not count."

"Do we have to get cleaned up?" inquired Dickey, doubtfully.

"Yes, indeed. Who ever heard of a dirty, rumpled bee?" was Mildred's suggestion.

"Oh, ho!" laughed Doris May. "Dickey is scared. He thinks he will have to wash his ears."

"Not quite that," replied Fleet Wing. "But we must all be immaculately clean."

"Dear me," sighed Doris May, "I do hope you boys won't keep us waiting, as you always do for Sunday school."

"And for parties, and supper, and even school," added Mildred.

"Well, anyway, if we do have to wash," remarked Robert, "we won't have to use any soap, and that is one comfort."

"So, following Fleet Wing's example, the bee fairy children, as carefully and thoroughly as possible, brushed, combed and polished themselves until, as Doris May finally remarked, "We all surely must shine."

Then, following their guide, Fleet Wing, they moved over toward the center of the hive and stood respectfully waiting for the signal to approach her royal majesty, the queen-mother.

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Before me, a notary public in and for the state and county aforesaid, personally appeared M. G. Dadant, who, having been duly sworn according to law, deposes and says that he is the business manager of the American Bee Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, rendered by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

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OCTOBER QUEEN BEES

We Guarantee Safe Introduction

While the fall flowers are blooming is just the right time to do your requeening. A queen introduced now gives you a fine lot of young bees for wintering and a splendid young mother all ready next spring to produce a great army of workers for the honeyflow. We have thousands of fine young select queens ready to ship, and not only do we guarantee safe arrival and satisfaction, but during October we also guarantee **SAFE INTRODUCTION**. We only ask you to follow directions carefully and we take the risk of loss. This offer applies more especially to the southern states and those bordering on the Ohio River north.

Price, 50c each, any number. All queens selected. Wings clipped on request.

Bright three-banded Italian queens only.

Pure mating guaranteed.

M. C. Berry & Co., Box 697, Montgomery, Ala.

37 Years Producing Reliable Bees and Queens

Store the Guesswork—Guess Not the Stores

(Continued from page 477)

bees for an eight-frame hive, and eight pounds for a ten-frame hive.

Let us take it for granted that an eight-frame hive, bees and all, weighs eighteen pounds. Forty pounds of stores would not be too much for them. In order to have that much, the scale should register nearly sixty pounds.

If we want fifty pounds of stores for a ten-frame hive, then, figuring the hive and bees to have the weight of twenty-two pounds, such a stand should register approximately seventy-five pounds.

To err is human. So if we want to make any allowances for errors, let us give the hive the benefit of the doubt. Figure rather more weight for hive and its complement of bees than less. Such an allowance will give them more stores, for even a few pounds of food may make a world of difference in the honey crop of next year. Missouri.

MEETINGS AND EVENTS

(Continued from page 499)

frame of sealed honey, Myrtle Curtis Schilb, of Montserrat.

For three-banded Italian queen, Ollie C. Kirbey, of Sedalia; golden Italian queen, W. A. Scott, of La Monte; Caucasian queen, William Brengarth, of Slater; Carniolan queen, Carl Neef, of Boonville.

Dr. M. Hajdak Appointed at Bee Culture Laboratory

Dr. M. Hajdak, formerly of the Institute of Beekeeping at Dol, Czechoslovakia, has been appointed field assistant at the Bee Culture Laboratory.—Monthly Letter, U. S. D. A., No. 195.

DOINGS IN THE NORTHWEST

By N. N. Dodge

(Continued from page 501)

factory in Alhambra, California, came to Seattle late in August to supervise the installation of the new equipment. According to Mr. C. E. Hamman, manager of the Seattle plant, enough orders for fine, white beeswax have already been obtained to keep the filtering machine in constant operation for many months, thereby offering a market for much of the beeswax produced in the Pacific Northwest.

— o —

Bees and Honey Part of Pre-School Course

Bees and honey held a prominent

position in the nature study course offered by the Seattle Council of Pre-School Associations during the past summer. Mrs. Charles Budde, leader of the nature study groups, which were composed of mothers and children of pre-school age, obtained a display case containing a comb with bees, brood, and honey, and spent considerable time explaining the interesting life and activities of honeybees to the mothers and their children. The effect of her teachings was shown in the exhibit staged at the close of the course early in September. Many of the displays contained bees and flowers which produced nectar, while one had a number of vials of honey in conjunction with the species of plants from which the nectar was obtained.

— o —

Western Washington Fair

Exhibits of bees, honey, beeswax, and honey products at the Western Washington Fair at Puyallup, Washington, and at the Oregon State Fair at Salem, were well up to standard, according to Mr. Frank Ross, superintendent of the Bee and Honey Department of the Western Washington Fair, and Mr. S. D. Williams, who holds the same position at the Oregon Fair. The fine flow from fireweed in the Northwest encouraged the placing of many entries in this class in the honey competition.

Aeppler Display 'O Wrappers



The Modern Merchant Believes in the Open Display of Goods. Have Every Section a Display Case.



Pack comb honey in corrugated cases and save money. In Comparative DRUM TESTS, the wooden case and honey was completely damaged in ONE drop, whereas honey packed in Corrugated Cases after TWELVE drops showed less damage to both case and honey!

Cut labor costs; no nailing of cases! Wrap comb honey and pack in Aeppler cases at no greater cost than wooden cases.

	PRICES	Per 10	Per 100	Per 500
For 4 1/4 x 1 1/2	-----	\$2.60	\$25.00	\$115.00
For 4 1/4 x 1 1/4	-----	2.50	24.00	110.00
For 4 x 5 x 1 1/4	-----	2.50	24.00	110.00

On all orders of fifty cases or more, freight charges PREPAID to any point in the U. S. and Manitoba and Ontario, Canada. Sample case sent prepaid for 60c to any address in the U. S. and Canada.

Gummed tape for sealing cases, 3 1/4-lb. roll 2 1/2 inches wide, 80c prepaid to any address.

AEPPLER CASES are the most practical, most economical, and most illustrative comb honey containers on the market.

Wrap Comb Honey and Keep It Clean

DISPLAY'O wrappers are the only mechanical wrappers on the market; require sealing on one end only. Automatic machines have done three-fourths of the work for you! A thing of beauty, practical and economical. Can be hand wrapped three times as fast as flat wrapper. For quantity work, use our machine. The cellophane used in Display'O wrappers is 50 per cent HEAVIER than the cellophane in competitive wrappers. Strength is a requirement of a GOOD wrapper.

	PRICES	Per 100	Per 500	Per 1000
For 4 1/4 x 1 1/2	-----	\$1.10	\$4.95	\$ 9.50
For 4 1/4 x 1 1/4	-----	1.20	5.40	10.70
For 4 x 5 x 1 1/4	-----	1.20	5.40	10.70

All transportation charges PREPAID to any address in the U. S. and Canada. Sample wrapper sent prepaid to any address for 5c. Wrap comb honey and pack in Corrugated Case at no greater cost!

COMB HONEY PACKAGING MACHINE

Wrapping Capacity of this Machine—a Case of 24 Sections in 4 to 7 minutes. This time includes the sealing of one end of each wrapper. Shipped completely assembled and tested. Manufactured to last a lifetime. Price \$8.75, prepaid to any address in the U. S. and Canada.

C. W. Aeppler Company

...:

Oconomowoc, Wisconsin

(Sole Manufacturers and Jobbers)

Crop and Market Report

Compiled by M. G. Dadant

For our October crop and market report, we asked our reporters to answer the following questions:

1. What is the final per colony average for 1930?
2. For what price are five-pound pails selling retail in your locality? Ten-pound?
3. What price is being offered in large lots for white honey? Amber? No. 1 comb per case?
4. What figure are beekeepers asking?

PER COLONY AVERAGE

There has perhaps been some improvement in reports coming in owing to the fact that many localities have had beneficial rains, and where there was a fall crop expected or the clover crop was extending farther into the fall, this has made for a better per colony production.

On the whole, however, conditions are not very much changed from what they were a month ago and the total crop is undoubtedly going to be far less than what it was a year ago.

Sections reporting the best crop with fair averages are as follows: Vermont, 75 pounds; Connecticut, 100 pounds; New York, 100 pounds; Louisiana, 90 pounds; Michigan, 90 pounds; Minnesota, 75 to 100 pounds; South Dakota, 100 pounds; Nebraska, 125 pounds; Kansas, 75 pounds; Arizona, 75 pounds; Montana (some sections), 125 pounds; Ontario, 75 pounds; Manitoba, 100 pounds. This does not include, of course, parts of states such as western Iowa and northwest Missouri, where the crop has also been very good.

The sections reporting the poorest crop are, of course, the drought sections, such as southern Illinois, Indiana, Missouri, Tennessee, Kentucky, the Virginias, southern Ohio. The worse affected state, however, of the entire Union, we believe, is the state of Texas, where in many instances there has been no crop at all and in many others the crop has been so short as to hardly be worth figuring. We do not remember of a season for Texas where reports have been so uniformly poor. Texas has perhaps fared best in the cotton sections that have had fair crops.

RETAIL PRICES

As a general rule, prices for five- and ten-pound pails retail ranked higher in the eastern states and gradually lower as one works west. The average price in the New England States and in parts of New York was \$1.00 for five-pound pails and \$1.75 to \$2.00 for ten-pound pails. In the Central West the price seems to have been somewhat lower, with about 85 cents for five-pound pails and \$1.60 to \$1.75 for ten-pound pails.

As we approach the plains territory, some sections maintained a price about the same as Central West, but others are asking in the neighborhood of 75 cents for five pounds and \$1.40 for ten pounds. It is when we reach the mountain territory that we find some of the very lowest prices, ranging as low as 50 cents for five-pound pails and 95 cents for ten-pound pails, with the average about 65 cents for five pounds and \$1.25 for ten pounds.

In Manitoba the price seems to have been pretty well maintained from the fact that chain stores were out after new crop honey at same prices as last year, which was an invigorating thing for the market. In Ontario the retail prices seem to have dropped somewhat.

PRICES OFFERED

Again we find the prices offered ranging considerably from east to west, chiefly because of the difference in freight rates. As a general rule, the Central West prices are in the neighborhood of 7 to 7½ cents f. o. b. shipping station for white honey, and ranging as low as 6 cents on amber.

Offers in the West have ranged from 5½ to 7 cents for white and as low as 4½ to 6 cents for amber.

A reported offer as low as \$2.40 for No. 1 comb honey and several offers at \$2.88 and \$3.00. The general run of offers was in the neighborhood of \$3.50 for No. 1 per case.

WHAT ARE BEEKEEPERS ASKING?

Usually beekeepers are asking about the same as last year. However, as one reporter stated, beekeepers in some instances are asking what they can get, and that is the reason why we have learned of carloads of white honey selling as low as 6 cents per pound f. o. b. shipping station, and comb honey as low as \$3.00 per case. These are lots evidently somewhat distressed, which are seeking a market regardless of the fact that the large buyers are holding off to see what the market will do unless they can buy at their own price.

On the bright side of the picture, we learn of two carloads of honey in the central states which have moved at 7½ cents f. o. b. shipping station, and there are many beekeepers who are insisting they will hold for a price of at least 7½ cents, and a number of them 8 cents, for good white honey.

It looks like it should be worth nearly that this year because of the low supply. Furthermore, many honeys which usually are in the white grade will this year class as light amber because of the fact that the flow was so slow and so mixed on account of many sources of flowers. On the other hand, one of our reporters remarked that business conditions were not such that it would seem possible that last year's prices could be maintained, particularly in view of the shortage in demand from Germany and other European countries. On the other hand, we must not lose track of the fact that there is an extreme shortage of fruit throughout the central western areas and that after the fruit season has settled down and the picking has been completed there will undoubtedly be a demand for honey and other syrups to take the place of the shortage of canning all sorts of fruit this year.

Personally, we do not see how the market can work into any more demoralized condition than it is just at present, and we do look for a rather rapid improvement in conditions during the season.

There are already many beekeepers who are running out of honey owing to a shortage of the crop and who are inquiring around for new supplies.

If the local beekeeper would only be forearmed and continue to keep his customers by buying outside honey, it would not take long to clear up a market which just now has become somewhat demoralized on account of many ill-informed or needy beekeepers seeking a market immediately at any price.

If there ever were such a time, now would appear to be a time when local markets should be well supplied. This can be done without any price cutting campaign, because there is a demand there which will use the honey if the proposition is put to them in the proper manner.

We Are Cash Buyers of Honey and Beeswax
Submit samples, and best prices, freight prepaid
Cincinnati. We also furnish cans and cases.

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References: 1st National Bank, R. G. Dun or
Bradstreet's Commercial Reports.

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—where you may buy, sell or exchange at moderate cost—only 7 cents a word. Count each word of your message, including name and address. Our advertisers tell us: "IT PAYS." Send your ad for the very next issue now to reach us by the 15th. Terms: Send remittance with copy and order. Minimum ad ten words.

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Ads as small as ten words, costing only 70c, are accepted here, but our regular advertisers have demonstrated that it pays to tell more. Use enough words to thoroughly describe your offering and you'll sell quicker. Address all orders or inquiries to the Classified Advertising Department of the American Bee Journal, Hamilton, Illinois.

Will sell your Honey, Flowers, Poultry, Fruit, Pets (as rabbits, etc.) and more . . . Is your ad here?

As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

BEEES AND QUEENS

THANKS for your past business. Will be open for your orders on the same stand in '31 with better stock, better breeding, better service and larger holdings. If you are in the city of New Orleans in the meantime, look me up at Kenner, Louisiana. Jes Dalton, Kenner, La.

IF you want gentle bees, good honey gatherers and beautiful to look at, my strain of golden Italians will please you. Prices, July to November: One untested, 90c; six, \$4.80; twelve to forty-nine, each, 70c; fifty or more, each, 65c. Tested, each, \$1.25. Circular on request. Health certificate, safe arrival and satisfaction. Hazel V. Bonkemeyer, R. 2, Randleman, N. C.

BUY your queens from Allen Latham, Norwichtown, Conn.

SCIENTIFICALLY line bred Italian queens throughout the year. Honeyville Queen Apiaries, R. 1, Monrovia, Calif.

PACKAGE BEES—For April and May delivery. Write for prices, guarantee, etc. The Crowville Apiaries, R. 1, Winnsboro, La.

FOR SALE

FOR SALE—100 colonies bees in painted hives, with full sheets wired foundation. No disease. Price of hives and foundation only asked. L. L. Ferebee, Pineland, S. C.

25 COLONIES of bees in two-story hive bodies. No disease. J. E. Wilson, Box 251, Sedgwick, Kansas.

FOR SALE—A modern queen-rearing outfit in the heart of Alabama's queen-rearing section. Two hundred colonies of bees, 70 acres of land, good house. For particulars write M., Honorville, Ala.

HONEY FOR SALE

WHITE CLOVER—Comb honey, packed eight cases to carrier. C. J. Schwind, Route 3, Belvidere, Ill.

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

COMB, extracted and chunk honey in ten sizes glass containers and 2½-, 5-, 10- and 60-pound tins. Livest labels in U. S. or plain. One of our special display cases with \$25 and \$50 orders. Write for free illustrated circular showing our packages and free samples of honey. Griswold Honey Company, Madison, O., U. S. A.

STURDEVANT'S CLOVER HONEY — St. Paul, Neb. Any quantity.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

HONEY FOR SALE—All grades, and quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

WHITE CLOVER comb honey, packed eight cases to carrier. W. L. Ritter, Genoa, Ill., DeKalb County.

FOR SALE—Extra choice white clover honey, case or carload; also amber. David Running, Filion, Mich.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request. Dadant & Sons, Hamilton, Illinois.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

HONEY FOR SALE—White and amber honey in 60-lb., 10-lb. and 5-lb. tins. Write for prices. Dadant & Sons, Hamilton, Illinois.

FOR SALE—Northern white, extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

WHITE Clover extracted honey. Write for prices and samples. Kalona Honey Co., Kalona, Iowa.

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed. Case or quantity. E. J. Stahlman, Grover Hill, Ohio.

FOR SALE—Delicious palmetto honey in barrels; also heavy bodied amber. P. W. Sowinski, Fort Pierce, Fla.

CHOICE lots white clover, sweet clover, light amber and buckwheat in any amount. State quantity wanted when writing. A. I. Root Company of Chicago, 224-230 West Huron, St., Chicago, Ill.

HEAVY BODIED water-white sweet clover honey in case or car lots. Sample 10c. C. S. Engle, 1610 Fourth Ave. South, Fargo, N. Dak.

EXTRACTED clover-basswood honey in new cans and cases; fine quality light amber, carload or less. Sample on request. Roger Lane, Trumansburg, N. Y.

FOR SALE—Light honey in 60-lb. cans. David Conn, Roaring Branch, Pa.

WHITE sweet clover-alfalfa, in case or carload. Sample 15c. George Seastream, Moorhead, Minn.

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

NEW CROP clover-basswood honey, finest quality. Case or carload. Write for prices. E. L. Lane, Trumansburg, N. Y.

CLOVER HONEY—No. 1 comb, \$4.50; No. 2, \$3.50 per case. Glass front wood or fibre cases, six- or eight-case carriers. Clover extracted 9c, 60-lb. cans. H. G. Quirin, Bellevue, Ohio.

FOR SALE—"Black Hills" fancy extracted honey from sweet clover and alfalfa, in 60-lb. cans, at 8 1/3 cents per pound. Write for prices on large lots. Ernest W. Fox, Fruitdale, S. Dak.

FOR SALE—Best quality clover honey, \$9.00 per case of 120 pounds; new crop. Virgil Weaver, Moville, Iowa.

\$11.40 FOR A CASE of two 60-pound cans of choice clover extracted honey, delivered freight paid your station within 500 miles of Savanna. Write for large lot price. Valley View Apiaries, Savanna, Ill.

FINEST quality clover honey in new 60's, \$9.00 per case 120 pounds. Martin Carmoe, Ruthven, Iowa.

FOR SALE—White clover comb, 4¼ sections; also extracted in 60-lb. cans. All new crop. C. Holm, Genoa, Ill.

FOR SALE—Bulk comb and extracted honey in any style containers. F. E. Hyde, New Canton, Ill.

NEW CROP clover honey, extracted, in new sixties. Case, \$10.00. Alfred E. Thomas, Secor, Ill.

LIGHT AMBER honey, 6¼c. Sample 15c. Edward Klein, Gurnee, Ill.

DID YOU produce enough honey to keep your trade going? If not, let A. L. Kildow supply you. A. L. Kildow, Putnam, Ill.

WHITE CLOVER honey, \$9.00 per case; light amber, \$8.00. Sample 15c. Sylvester Legat, Spring Valley, Ill.

FOR SALE—Forty cases sweet clover fancy comb honey; also some fall flower honey, slightly darker than above. Earl Abramson, Arrington, Kansas.

FINE clover honey, extracted and sections. State amount needed and get my prices. L. G. Gartner, Titonka, Iowa.

FIVE tons new extracted honey in 60-lb. tins. Write for prices and free samples. Harry Timm, Bennington, Neb.

CLOVER HONEY—1930 crop extracted honey in new 60-lb. cans. E. C. Rasmussen, Exira, Iowa.

RASPBERRY, basswood and clover honey, comb, chunk or extracted; 10 pounds, postpaid, \$2.50; six 5-lb. tins, \$4.80 f. o. b. F. L. Barber, Lowville, N. Y.

FOR SALE—Two cars water-white alfalfa-sweet clover honey. Send for sample and prices. J. F. Weber, Bloomington, Calif.

BETTER honey for less money. Nice white honey in new cans and cases. Sample 10c. Prices on request. Satisfaction guaranteed. Harry C. Kirk, Armstrong, Iowa.

FOR SALE—Finest quality clover honey. Lewis Klatz, Carsonville, Mich.

FINEST quality clover-basswood extracted honey packed in new cans. Write for sample and prices. Gelser Bros., Dalton, N. Y.

FOR SALE—White clover honey in 60-lb. cans. Write for prices. John Olson, Davis, Ill.

FOR SALE—Sweet clover extracted honey; quality and body fine. Thomas Atkinson, Route 5, Omaha, Neb.

WHITE CLOVER comb, fancy and No. 1 white. F. B. Sherman, Edgerton, Wis.

HONEY AND BEESWAX WANTED

WANTED—Car lots of honey. State quantity, shipping point and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Calif.

WANTED—A car or less quantity of white honey in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkey, 816 Hazel St., Birmingham, Mich.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cents a pound for wax rendering. Fred W. Muth Company, 204 Walnut St., Cincinnati, Ohio.

WHITE CLOVER comb honey, 4 1/4 sections. Must be graded U. S. or Colorado rules. Quote your lowest price and quantity you have to offer. A. L. Haenseroth, 4161 Lincoln Ave., Chicago.

WANTED—A limited amount of section and shallow frame comb honey. Early delivery required. Sioux Honey Association, Sioux City, Iowa.

WANTED—Car or less white extracted honey, also comb honey in frames. Make delivered price and send sample. T. W. Burleson & Son, Waxahachie, Texas.

SUPPLIES

SAGGED COMBS are result of slackened wires caused by wires cutting soft wood of frames. Use metal eyelets. Per 1,000, 60c. Handy tool for inserting eyelets 25c. Postage 3c per 1,000. Superior Honey Co., Ogden, Utah.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it. Dadant & Sons, Hamilton, Illinois.

MAKE queen introduction sure. One Safin cage by mail, 25c; five for \$1.00. Allen Latham, Norwichtown, Conn.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so, send us a list. American Bee Journal, Hamilton, Ill.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Sistema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price \$1.00.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Association, Denver, Colo.

SPECIAL FALL OFFERING—Absolutely new Lewis-Markle L-512 extractor baskets, 9 1/2 x 17 1/2, at \$70.00; honey pump, L-514, with 5" double flange pulley, \$14.00; Lewis K-525 No. 20 hand extractor, two-frame pockets 13 1/2 x 17 1/2, \$20.00. Standard Lumber Company, Graceville, Minn.

USED extracted cases, 25c. New crop white clover in new tins, 10c. Jessup Honey Farms, Carmel, Ind.

FOR SALE—Closing out new and used bee supplies; 60-lb. cans (new); or exchange for what? Ernest W. Peterson, Sandwich, Illinois.

WANTED

WANTED—Steady position, in large apiary, by gentleman of good habits; considerable experience. Write E. C. Lovering, Str. W. C. Franz, Sault Ste. Marie, Mich.

MISCELLANEOUS

PLANS for poultry houses; 150 illustrations. You need this book. Write for free offer and sample copy of "Inland Poultry Journal," 51 Cord Bldg., Indianapolis, Ind.

SELL IT—Honey or bees or queens or second-hand equipment or pet stock or poultry, by advertising it in Gleanings in Bee Culture, Medina, Ohio, with its more than 20,000 paid subscribers. Rates: 7c a word classified; \$4.20 an inch for display advertising. That great beekeeper, George S. Demuth, is editor, for whose beekeeping teachings 20,000 beekeepers subscribe.

THE BEE WORLD—The leading bee journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper, \$2.55 (10/6). The Apis Club, Brockhill, London Road, Camberley, Surrey, England.

VITEX TREES—Special prices for fall planting: For order of five trees, 1 1/2 to 2 feet, \$4.50 (two 50c trees free); five trees, 2 to 3 feet, \$9.00 (four 50c trees free); five trees, 3 feet and over, \$12.00 (six 50c trees free). Combination of sizes: Fifteen trees—five 1 1/2 feet, five 2 feet, five 3 feet, \$22.50 (ten 50c trees free). Fifty trees—Twenty 1 foot, ten 1 1/2 feet, ten 2 feet, ten 3 feet, \$62.50 (twelve 50c trees free). We do not prepay charges on these prices. Adam Scott, Manager, Joplin, Mo.

Veteran Mendleson Escapes Accident

Mr. M. H. Mendleson, veteran beekeeper of Piru, Ventura County, California, had a narrow escape from a serious accident recently while engaged in moving a heavy trailer-load of bees to the lima bean fields. The work, as usual, was being done at night. The trailer was drawn by a touring car, which was also loaded with hives of bees.

Headlights on a car going in the opposite direction so dazzled and blinded Mr. Mendleson that he was for a moment fearful of a collision. In order to avert such a disaster, he pulled far to the right, giving the other car a wide berth. The load of hives on the trailer, being somewhat top-heavy, struck a telephone pole and the entire top of the load was dashed to the cement highway, breaking open the hives and scattering the bees over many square yards of the pavement. The end-gate of the trailer was also broken, allowing some of the hives in the lower part of the load to fall to the ground.

Altogether it was a pretty serious situation for a man 77 years of age to meet, 10 o'clock at night, and alone. But, fortunately, Mr. Mendle-

son escaped unhurt. He set about immediately to clear the highway of broken pieces of hives, and, when that was done, he continued the journey to one of his lima bean locations near Oxnard.

Thus the fortitude, courage and resourcefulness of a true veteran have been proven. Temperate habits, plain living, and clean thinking, together with vigorous physical exercise in the fascinating occupation of beekeeping in the bright sunshine of God's great out of doors, have again shown their worth as the best preparation for emergencies.

Although the sage honey crop was a failure in Mr. Mendleson's part of the state, the lima beans were giving a good flow at the time of and immediately after the accident.

China Welcomes Bees from Japan

This is the report from a newspaper clipping which says that North China has been invaded by shipments of bees from Japan, that almost every steamer from Japan to Tientsin brings its quota of bees, and few trains from the port to Peiping lack a few hives in the baggage cars. Shops have sprung up along Hatamen Street, one of the principal shopping streets of Peiping, dealing in equipment for beekeepers—nets, hives and specialties.

A school of beekeeping has been established in the palace of the late Li Lien-yung, in the Forbidden City. The multiple courtyards of the palace are filled with bees, and with earnest Chinese learning how to care for them. A "short course" is being taught pupils, who are turned out as beekeepers in a few weeks.

Thus far, the Chinese purchasers of bees seem interested in bees for their own sake, and not for the honey, since the bees are being raised to sell, the demand for them being great enough so that they are sold readily.

The interest in bees is more surprising because honey is not particularly popular in China. It has been hard to get good honey in North China until lately, and even now bees are being bought and sold so rapidly that they are not turning out much honey. Observers are watching with interest to see how long this situation will continue. N. N. D.

Any Basswood Honey?

We have an inquiry from the West for basswood honey. Several letters have been written to private individuals asking for its supply, but no one seems to have any. Now, how about it? We don't want a ton or a carload. I expect just a small amount, but then—have you any basswood honey?

Clear H Crystal
HONEY JARS
will sell your honey

No panels to catch shadows which darken the color. Beautiful in Clarity and Pattern, and Strength in Construction.

4 SIZES — Individual, Half Pound, One Pound and Two Pound. Accurate Graduation.
WRITE FOR SAMPLES AND PRICES
HAZEL ATLAS GLASS CO.
WHEELING, W. VA.
WORLD'S LARGEST MANUFACTURERS
GLASS FOOD CONTAINERS

Virginia Orchardist Concerned Over Next Year's Pollination

W. J. Nolan, returning from the "Farmers' Week" program at Blakesburg, Virginia, where he addressed the orchardists on pollinating insects, reports that Virginia fruit growers are apprehensive concerning the destruction of natural pollinating insects, such as bumblebees, by the numerous forest and brush fires and the exceedingly dry weather. They are concerned about the question of pollination for the coming spring. It is suggested that Virginia beekeepers make every attempt to help out in this situation.—Monthly Letter, U. S. D. A., No. 195.

Unusual Condition in Cases of European Foulbrood

At the request of Professor Eric Millen, Provincial Apiarist, Ontario Agricultural College, Guelph. Dr. C. E. Burnside, of the Bee Culture Laboratory at Washington, consulted with the apicultural staff of that institution and the provincial inspectors concerning the unusual conditions observed this season in colonies infected with European foulbrood.

Field diagnoses were made under great difficulty. Similar difficulties have been experienced in the United States during the present season. Diagnosis has been possible only by the use of the microscope to make sure of European foulbrood, because of the close resemblance to American.—Monthly Letter, U. S. D. A., No. 195.

Bees in North May Come Out of Cellar too Early

In the July issue, page 341, H. J. Minall describes weather conditions similar to those I have experienced in northern Minnesota for eight years. He takes his bees out of the cellar too early and his packages arrive too early.

If there is a good, dependable honeyflow during July and August, some changes in management will bring him big honey crops.

C. S. McReynolds.

Utah Crop Only Fair

The honey crop, according to D. H. Hillman, will only be just fair in Utah, because the dry weather reduced the sweet clover and alfalfa bloom. He also reports that grasshoppers are a menace in some places, having stripped the clover bloom. In at least four counties—Beaver, Carbon, Emery and Sanpete—the honey crop is reported very poor. In the alfalfa seed district, beekeepers report a good crop. G. P.

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They will please you

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Fitzpatrick, Ala.

Star Exhibit at County Fair Is Honey Booth

One of the most important exhibits at the Tooele County Fair, Utah, held in September, was the honey booth. The exhibit was in charge of D. S. Adams, of Grantsville, and was purely educational, giving in detail the process of the production of honey. The exhibit included charts, data, and a demonstration on the uses of honey in home economics. Small cook books on honey recipes were given to housewives.

Bees were exhibited, showing the inside workings of the hive. The production of wax and its uses were also shown.

G. P.

Add Honey Products to Your Honey Sales

I note, on page 342 of the Journal, New York asks for information on honey butter. We whip high-grade creamery butter and A-1 extracted honey 50-50 together and call it "Honey Butter."

We also whip extracted honey and peanut butter together 50-50 and call it "Honey Nut Butter"; also whip granulated honey and call it "Cream-O-Honey." All these help honey sales.

J. E. Miller, Oregon.

Erlanger Jahrbuch Fur Bienenkunde

The above is the title of the eighth of a series of yearbooks written by Dr. Enoch Zander, A. Hummer, and others. The several articles in the book, which, as the title signifies, is in German, deal with beekeeping and horticultural conditions, improvement in production, disease, data, etc.

The book is published by Paul Parey in Berlin and the price is 13 marks.

Another German Bee Book

A 150-page bee book, accompanied by the number of tables, has just appeared from the press of Karl Wachholtz Verlag, Neumunster in Holstein, Germany. The title of the book is Die Pollenformen als Mittel zur Honig-Herkunftsbestimmung (The Pollen Grain as a Means of Determining the Source of Honey), by L. Armbruster and G. Oenike.

The book is a very thorough one on the subject mentioned and undoubtedly will be of considerable interest to investigators who are interested in this line of work as well as to a number of our German reading subscribers. The book can be purchased from the publishers as above, the price being 6 reichmarks.

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Prices for balance of season are: One to five, each, \$1.50; six, \$8.00; twelve, \$15.00; twenty-five to forty-nine, each, \$1.00; fifty and over, each, 90 cents. Tested, one, \$3.00; select tested, one, \$4.50. Health certificate attached and safe arrival guaranteed.

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YANCEY HUSTLER QUEENS SELECT 3 - Band

Balance of Season 50c Each

Write for prices on large orders.

CANEY VALLEY APIARIES, BAY CITY, TEXAS

The POSTSCRIPT

GOSSIP ABOUT THE OFFICE IN THE MAKING OF THE MAGAZINE

THE making of a month's issue of American Bee Journal is an interesting process. Always the editorial staff is trying to find out just what will be most interesting to the readers. If we happen to get something in that doesn't suit we are likely to hear about it right away, and some of the letters are not very complimentary either. But we never really know whether most articles are liked or not. It is sometimes hard to decide which article to use and which one to leave out, for we always have far more material on hand than we can possibly squeeze into the pages. Of course, the more material we have the better variety is possible.

Wintering to Suit Everybody

Take the articles on wintering in this issue. Just now is the time when everybody is thinking about getting the bees into winter quarters, and suggestions on that subject are more useful now than they will be later.

Note that first article in this issue by Professor Milum: He raises some interesting questions about packing for outdoor wintering. Do the bees really save enough stores to pay the cost of packing, and do the bees really build up faster in spring? After all, the object of winter protection is to increase the returns from the bees the following season. To get an idea just what the value of the winter packing really is, read Milum's article and decide for yourself.

Then on page 480 is a different kind of wintering article. When Swanberg sent in his story of packing cases for about 25 cents per colony it looked interesting. G. H. Cale (we call him "Glory Hallelujah") and Elva Kirlin, who look after the Dadant bees, wanted to try it right away. When they made up an outfit to see how it worked the pictures were taken which go with the story. Glory and Elva are really pretty good looking fellows even if you would not believe it from the pictures. The nice thing about Swanberg's idea is that it works just as he says in the article, although the boys didn't get a very smooth job of it the first time.

While we are thinking about packing, just read the articles by Dehart on page 478 and Thomas on the next page and see which one you agree with. Thomas lives in Montana, where the bottom drops out of the thermometer and they guess how far below the bottom the temperature is. Uncle Sam says that it dropped to 65 degrees below zero at Miles City once. We take his word for it; we don't care to get out there at that time of year to see for ourselves.

The funny thing about it is, the man in North Carolina, where they don't have so much winter, argues for the packing, while the man in the cold country doesn't think it so important. Anyway you can find somebody in this issue who agrees with you about winter packing.

It Takes Bees to Make Apples

It is surprising how much interest has developed in the use of honeybees for the pollination of fruit trees of late. The orchard business is not new and bees are no more useful than they have always been, but it seems that fruit growers are just now coming to realize fully just how much they do need bees at blooming time. Hopfinger tells about a Delicious orchard in Washington which was unfruitful until they tried the methods already described in this magazine by Hootman. Right here let me tell you that my boss is looking for bees that can make the apples stay on after the fruit is set. The boss (we call him Louie) has an apple orchard of which he is mighty proud. I don't blame him any, for it is a nice orchard, but we had a big windstorm in early September which shook off most of the fruit just when he was figuring out what kind of Christmas present he would buy for his wife from the apple crop. Naturally, when you have an apple crop about ready to harvest and the wind blows it off a month too soon and you have nothing but a lot of premature windfalls—well, anyway it is a poor time to ask the boss for a raise.

Truth Too Well Told

I wonder where that man McCain got the idea that the discussion of tuberculosis and foot and mouth disease had not hurt the sale of meat and milk and that poultry diseases had not reduced the sale of poultry products? If he had been reading the produce magazines when that line of publicity was going on he would have been more careful what he said. Anyway you will want to get his viewpoint on page 481.

All the Microbes are Cornered Now

When you read the article on "Cornering Microbes," by Wilson and Marvin, you may wonder how they got them all cornered. A little of this kind of scientific discussion is good in a popular magazine like ours. Sometimes we are surprised to find how generally such articles are read. Certainly we ought to know more about the cause of our troubles. Speaking about troubles, many northern bee men regard the beemoth as a major source of trouble, but they should have a try at caring for a lot of surplus combs in the South. Alfred Perring tells something about that also. Down in that country you are likely to find the supers piled on in winter as though they expected a honeyflow to happen along suddenly. The secret is that the moths are likely to ruin all the combs unless the bees are caring for them. The interesting thing about this article is that big hives are recommended for Florida, where they have been telling us the bees won't breed like they do in the North. Since Perring has kept bees both north and south, he should be able to make comparisons.

That man Pollard throws some cold water on the arguments of the fellows who have been advocating sun-lit hives. It all goes to show that it don't pay to get excited over new ideas until we have tried them out.

Books—Books—Books

When you read the article about the Miller Memorial Library you will wonder how it came that so many books have been written about bees. Really it looks like there would not be anything new to tell after all this big stack of books have been printed. Do you know the professors say that there is not a single book on bees that is fully up to date, since so many new things have been brought to light during recent months? Anyway the students at the Wisconsin University will have to keep pretty busy if they read all the bee books.

Bear vs. Bare

One wonders what Sippel would be doing now if he wasn't fighting bee diseases in Montana. The war sure did upset a lot of apple carts, and some of them profited by the spill. Montana wouldn't be Montana without Sippel. When I went west he showed me more of Montana than any man has a right to expect to see in one month's time. On the way from Fromberg to Bozeman we sneaked in a trip through Yellowstone Park. I was anxious to see the bears that Sippel talked about, and I am sure we saw about thirty in one day. The bears in the park are wild bears, but because the Government protects them they are not afraid. Some folks have the idea that they are pets and get into trouble. The chief ranger told us about one smart fellow who stopped a park bus to take a picture of a mother bear they met in the road. He made the mistake of getting between the bear and her cubs, with the result that she resented and tore off his pants. He went back to the hotel wrapped up in a robe. Then Fred McCune wrote the boss about "Bear vs. Bare" and intimated that I was the unfortunate. Now what do you think of that? Anyway I got a good picture of the bear, but since she was not eating honey I can't find any excuse to put it in the American Bee Journal.

Frank C. Pellett.